

【特許請求の範囲】

【請求項1】 文字や記号及び種々の指令を入力する為の入力手段と、文字やマークをドットパターンで印字媒体としてのテープに印字する印字ヘッドを含む印字手段と、印字ヘッドのドット数よりも少ない縦ドット数のディスプレイと表示制御手段とを含む表示手段とを備えたテープ印刷装置において、文字やマークのドットパターンデータを作成して登録する登録モードを設定するモード設定手段と、前記登録モードにおいて登録する文字やマークのサイズを指定する為のサイズ指定手段と、前記登録モードにおいて、ディスプレイに表示された登録データ入力画面のうちの登録データ表示領域に入力された文字やマークの登録用ドットパターンデータを記憶する登録データ記憶手段と、前記登録データ記憶手段における、前記サイズ指定手段で指定されたサイズの登録メモリエリアを縮小した所定の大きさの表示範囲指示エリアを、前記登録データ入力画面に表示させる指示エリア表示制御手段と、前記登録メモリエリアのうちのディスプレイに表示されている表示エリア部分を前記表示範囲指示エリアと同率の縮小比率で縮小したディスプレイ対応マーカを、前記登録データ入力画面のうちの前記表示範囲指示エリア内に識別可能に表示させるマーカ表示制御手段と、を備えたことを特徴とするテープ印刷装置の登録用ドットパターンデータ作成装置。

【請求項2】 前記指示エリア表示制御手段とマーカ表示制御手段は、前記登録メモリエリアのうちの、前記表示エリア部分の上側又は下側の縦ドット数を前記縮小比率で縮小して表示範囲指示エリアの縦ドット数に変換するときに、変換縦ドット数が1ドット未満のときには1ドットに切上げるように構成されたことを特徴とする請求項1に記載のテープ印刷装置の登録用ドットパターンデータ作成装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は、テープ印刷装置の登録用ドットパターンデータ作成装置に関し、特に小型のディスプレイを用いて文字やマークなどのパターン登録を可能にしたものに関する。

【0002】

【従来の技術】 従来、日本語用や英語用のワードプロセッサなどにおいては、キーボードや複数行分の文書のデータを表示可能な大型のディスプレイやドット方式の印字機構などを基本的に備え、入力した文書のデータはディスプレイに表示され且つテキストメモリに記憶される一方、印字用紙の種類や印字サイズなどを含み設定した印字フォーマットに基づいて、印字用紙に印字可能になっている。ところで、最近のワードプロセッサには、ユーザーが要望する文字やマークやイラストなどの登録パ

ーンを小型のポインタ又はカーソルを移動させることで、所定の構成ドット数（例えば、48ドット又は56ドット）からなるドットパターンの大きさで自由に描画でき、しかもフロッピーディスクなどの記憶媒体に記憶するようにしたパターン登録機能を付加したものが実用に供されている。従って、前記印字フォーマットに基づいて、登録パターンデータを単独で、或いは文書データ中の任意の位置に所望の文字サイズで印字可能になっている。

【0003】ところで、本願出願人は、実開平1-85050号公報等に記載のように、印字媒体としての透明な印字テープ（例えば、9ミリ、12ミリ、18ミリ、24ミリの幅のテープ）に文字や記号などのキャラクタを印字する為に、128ドットに対応する128個の発熱素子を縦方向に列設させたサーマルヘッド及び印字リボンを設けた印字機構を備える一方、キャラクタを印字する為のアウトラインフォントデータを制御装置に設け、キーボードから入力したキャラクタをサーマルヘッドのドット数よりも少ないドット数（例えば、32ドット）を縦方向に有す横長の矩形状の小型のディスプレイに表示するとともに、印字リボン及びサーマルヘッドを介して印字テープに印字するようにしたテープ印刷装置を実用化した。

【0004】

【発明が解決しようとする課題】 前記本願出願人が提案したテープ印刷装置において、前述したパターン登録機能を付加する場合、ディスプレイはその縦方向にサーマルヘッドのドット数よりも小さいドット数しか設けられていないので、構成ドット数が96ドット或いは128ドットからなるドットパターンの大きさで描画するときには、このドットパターンを登録する登録パターンを一括して表示できず、その登録パターンの一部分を上方又は下方にスクロールさせながら分割表示により登録パターン全体を表示することになる。その結果、作成中のパターンの位置が登録パターン全体に対する何れの位置であるかが分からないことから、登録パターンをバランス良く作成することが非常に難しいこと、更に登録パターンのバランスを確認する為にスクロール回数が増加して操作性や作業能率が悪いこと、などの問題がある。

【0005】本発明の目的は、大きなサイズの登録パターンをバランス良く作成できしかも作業能率を向上し得るようなテープ印刷装置の登録用ドットパターンデータ作成装置を提供することである。

【0006】

【課題を解決するための手段】 請求項1に係るテープ印刷装置の登録用ドットパターンデータ作成装置は、図1の機能ブロック図に示すように、文字や記号及び種々の指令を入力する為の入力手段と、文字やマークをドットパターンで印字媒体としてのテープに印字する印字ヘッドを含む印字手段と、印字ヘッドのドット数よりも少な

い縦ドット数のディスプレイと表示制御手段とを含む表示手段とを備えたテープ印刷装置において、文字やマークのドットパターンデータを作成して登録する登録モードを設定するモード設定手段と、登録モードにおいて登録する文字やマークのサイズを指定する為のサイズ指定手段と、登録モードにおいて、ディスプレイに表示された登録データ入力画面のうちの登録データ表示領域に入力された文字やマークの登録用ドットパターンデータを記憶する登録データ記憶手段と、登録データ記憶手段における、サイズ指定手段で指定されたサイズの登録メモリエリアを縮小した所定の大きさの表示範囲指示エリアを、登録データ入力画面に表示させる指示エリア表示制御手段と、登録メモリエリアのうちのディスプレイに表示されている表示エリア部分を表示範囲指示エリアと同率の縮小比率で縮小したディスプレイ対応マークを、登録データ入力画面のうちの表示範囲指示エリア内に識別可能に表示させるマーク表示制御手段とを備えたものである。

【0007】尚、前記指示エリア表示制御手段とマーク表示制御手段は、登録メモリエリアのうちの、表示エリア部分の上側又は下側の縦ドット数を前記縮小比率で縮小して表示範囲指示エリアの縦ドット数に変換するときに、変換縦ドット数が1ドット未満のときには1ドットに切上げるように構成してもよい。

【0008】

【作用】請求項1に係るテープ印刷装置の登録用ドットパターンデータ作成装置においては、モード設定手段は文字やマークのドットパターンデータを作成して登録する登録モードを設定し、サイズ指定手段は登録モードにおいて登録する文字やマークのサイズを指定するので、登録データ記憶手段は登録モードにおいて、ディスプレイに表示された登録データ入力画面のうちの登録データ表示領域に入力された文字やマークの登録用ドットパターンデータをサイズ指定手段で指定されたサイズの登録メモリエリアに記憶する。一方、指示エリア表示制御手段は、登録データ記憶手段における登録メモリエリアを縮小した所定の大きさの表示範囲指示エリアを、登録データ入力画面に表示させる。更に、マーク表示制御手段は、登録メモリエリアのうちのディスプレイに表示されている表示エリア部分を表示範囲指示エリアと同率の縮小比率で縮小したディスプレイ対応マークを、登録データ入力画面のうちの表示範囲指示エリア内に識別可能に表示させる。

【0009】このように、入力した登録用ドットパターンデータがディスプレイに表示された登録データ入力画面の登録データ表示領域に表示される一方、登録メモリエリアを縮小した表示範囲指示エリアが登録データ入力画面に表示されるとともに、登録メモリエリアのうちのディスプレイに表示されている表示エリア部分を縮小したディスプレイ対応マークが登録データ入力画面のう

ちの表示範囲指示エリア内に識別可能に表示されるので、作成中のパターンの位置が登録パターン全体に対する何れの位置であるかを容易に確認でき、大きなサイズの登録パターンをバランス良く簡単に作成でき、しかも作業能率を向上させることができる。

【0010】

【実施例】以下、本発明の実施例について、図面に基いて説明する。本実施例は、漢字やひらがなやアルファベット文字などの多数のキャラクタ及び作成パターンを印字用テープ（印字媒体としてのテープ）に印字可能な和文・英文用のテープ印刷装置に本発明を適用した場合のものである。図2に示すように、テープ印刷装置1の本体フレーム2の前部にはキーボード3が配設され、キーボード3の後方で本体フレーム2内にはサーマルヘッド13を有する印字機構PMが配設され、またキーボード3の後方には文字や記号を2行分表示可能な小型の液晶ディスプレイ22が設けられている。

【0011】キーボード3には、アルファベットやひらがなや数字や記号などの文字コードを複数種類発生可能な文字キー、スペースキー、リターンキー、ディスプレイ22に表示されたカーソルKを上下左右方向に夫々移動させる為のカーソル移動キー、無変換キー、変換キー、文字やマークなどの作成したパターンを登録する登録キー、作成したパターンを拡大又は縮小指示する拡大縮小キー、カーソル移動キーなどのキーと組み合わせて異なる機能を実行させる為の機能キー、各種の処理中における設定などを確定する実行キー、印字を実行する印字キー、印字用テープ5をテープ送りする為のテープ送りキー、電源をON・OFFする為の電源キーなどが設けられている。

【0012】次に、図3に基いて印字機構PMについて簡単に説明すると、矩形状のテープ収納カセットCSが着脱可能に装着されており、このテープ収納カセットCSには、透明なフィルムからなる印字用テープ5が巻装されたテープスプール6と、インクリボン7が巻装されたリボン供給スプール8と、このインクリボン7を巻取る巻取りスプール9と、印字用テープ5と同一幅を有する両面テープ10が剥離紙を外側に貼着させた状態で巻装された供給スプール11と、これら印字用テープ5と両面テープ10とを接合させる接合ローラ12とが回転自在に設けられている。ここで、前記テープ収納カセットCSとして、印字用テープ5のテープ幅を6ミリ、9ミリ、12ミリ、18ミリ及び24ミリとする5種類の専用のものが準備されている。

【0013】印字用テープ5とインクリボン7とが重なる位置には、サーマルヘッド13が立設され、これら印字用テープ5とインクリボン7とをサーマルヘッド13に押圧するプラテンローラ14と、印字用テープ5と両面テープ10とを接合ローラ12に押圧する送りローラ15とは支持体16に回転可能に枢支されている。更

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に、このサーマルヘッド13には、128個の発熱素子が密接状に上下方向に列設されている。

【0014】従って、テープ送りモータ24（図4参照）の所定回転方向への駆動により接合ローラ12と巻取りスプール9とが所定回転方向に夫々同期して駆動されながら発熱素子に通電されたとき、印字用テープ5上には複数のドット列により文字や記号が印字され、しかも印字後の印字用テープ5はその印字面に両面テープ10を接合した状態でテープ送り方向Aにテープ送りされる。尚、印字機構PMの詳細については、特開平2-106555号公報を参照。

【0015】次に、テープ印刷装置1の制御系は、図4のブロック図に示すように構成されている。キーボード3と、液晶ディスプレイ（LCD）22に表示データを出力する為の表示用RAMを有するディスプレイコントローラ（LCDC）23と、サーマルヘッド13を駆動する為の駆動回路25と、前記印字用テープ5やインクリボン7や両面テープ10を巻装した複数のスプールと各種ローラとを回転駆動させるテープ送りモータ24を駆動する為の駆動回路26と、警告用ブザー20の為の駆動回路21とは制御装置Cの入出力インターフェース27に夫々接続されている。このディスプレイ22の縦方向には、図13に示すように、サーマルヘッド13の発熱素子数よりも少ない32ドットから構成されている。制御装置Cは、CPU29と、このCPU29にデータバスなどのバス28を介して接続された入出力インターフェース27、CGROM30、ROM31・32及びRAM40とから構成されている。ここで、登録用ドットパターンデータ作成装置は、制御装置C及びキーボード3に設けられた登録キーやカーソル移動キーなどから構成されている。

【0016】CGROM（パターンデータメモリ）30には、多数のキャラクタの各々に関して、表示の為のドットパターンデータがコードデータに対応させて格納されている。ROM（アウトラインデータメモリ）31には、キャラクタを印字する為に多数のキャラクタの各々に関して、キャラクタの輪郭線を規定する輪郭線データ（アウトラインデータ）が書体（ゴシック系書体、明朝系書体など）毎に分類されコードデータに対応させて格納されている。

【0017】ROM32には、キーボード3から入力された文字や数字や記号などのキャラクタのコードデータに対応させてディスプレイコントローラ23を制御する表示駆動制御プログラム、テキストメモリ41の各コードデータに対応するアウトラインデータから印字用のドットパターンデータに変換処理して印字バッファ46に展開するイメージ展開処理制御プログラム、印字バッファ46のデータを順次読出してサーマルヘッド13やテープ送りモータ24を駆動する印字駆動制御プログラム、後述のテープ印字制御の制御プログラムなどが格納

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されている。更に、ROM32には、文字やマークなどを作成する為に、図5に示すように、「SS」や「S」や「M」などのサイズと登録パターンの大きさを示す「ドット数」とを対応させたサイズ・ドット数対応テーブルTBが格納されている。尚、この「サイズ」には、テープ幅（6ミリ、9ミリ、・・・）がサイズとして含まれており、これらのテープ幅に応じた最適なサイズの「ドット数」が対応付けられている。

【0018】RAM40のテキストメモリ41には、キーボード3から入力された文字や記号のコードデータが登録データとして格納される。登録メモリ42には、登録番号「0」～「9」に対応する10個の登録データメモリ42a～42jが設けられており、これら登録データメモリ42a～42jの各々には、作成された文字やマークなどの登録用ドットパターンデータとそのサイズを示すサイズポイント値が格納される。ポイントメモリ43には、前記サイズ・ドット数対応テーブルTBに格納されたサイズとドット数とを対応させた12個のサイズ項目の先頭アドレスを指示するサイズポイントPT、登録用ドットパターンデータの作成に用いるドットカーソルKの為のカーソルポイントKP、登録データ入力画面における登録ドットパターン表示領域Dに表示する登録データメモリ42a～42jの先頭表示行を指示するポイントTP及びその末尾表示行を指示するポイントBP、登録データメモリ42a～42j内の登録メモリエリアの先頭ドット行を指示するポイントTDL及びその末尾ドット行を指示するポイントBDL、指示エリアバッファ45におけるマーカーの先頭位置を指示するポイントtp及びその末尾位置を指示するポイントbpのポイント値が夫々格納される。

【0019】拡大縮小ドットパターンメモリ44には、作成された登録用ドットパターンデータを拡大処理又は縮小処理した拡大縮小ドットパターンデータが格納される。指示エリアバッファ45には、登録データ入力画面における表示範囲指示エリアEに表示するマーカーMを表示する為のドットデータからなるマーカーデータが格納される。印字バッファ46には、イメージ展開された複数の文字や記号のドットパターンデータや登録メモリ42から読出された登録用ドットパターンデータが格納される。尚、このRAM40のテキストメモリ41や登録メモリ42は電池によりバックアップされており、テープ印刷装置1の電源が切られてもその格納内容は消えないようになっている。

【0020】次に、テープ印刷装置1の制御装置Cで行なわれるテープ印字制御のルーチンについて、図6～図10に示すフローチャートに基いて説明する。尚、図中符号Si（i=10、11、12・・・）は各ステップである。電源キー操作により電源が投入されると、このテープ印字制御が開始され、先ず印字機構PMやメモリ41・42以外の各メモリ43～46をクリアするな

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どの初期設定が実行され、ディスプレイ22に文書を入力する為の文書入力画面が表示される(S10)。例えば、図11に示すように、ディスプレイ22には、その上段行に「文書作成/編集」が表示されるとともに、下段行に入力した文字や記号が12文字分表示可能な文書入力画面が表示される。

【0021】次に、ひらがなやカタカナなどの文字キーや数字キーに加えて変換キー、無変換キーなどの文書作成キーが操作されたときには(S11・S12:Yes)、入力されたひらがなを漢字に変換して、又は入力されたひらがな、カタカナ、数字やアルファベット文字を無変換で文書としてテキストメモリ41に格納する文書データ入力・編集処理制御が実行され(S13)、変換された漢字や無変換のひらがな、カタカナ、数字やアルファベット文字がディスプレイ22のカーソルKで指示する位置に順次表示され(S14)、S11に戻る。例えば、図11に示すように、入力した文書「ひらがな漢字」がディスプレイ22に表示される。

【0022】次に、文書作成中に登録キーが操作されたときには(S11:Yes、S12:No、S15:Yes)、登録モードが設定されてパターン作成・登録処理制御(図7参照)が実行される(S16)。この制御が開始されると、まず登録番号選択画面がディスプレイ22に表示され(S20)、更に登録データメモリ42a~42jの全てを検索して、登録用原ドットパターンデータが格納登録済みの登録番号に登録マークが追加して表示される(S21)。例えば、図12に示すように、10個の登録番号「0」~「9」を含む登録番号選択画面がディスプレイ22に表示されるとともに、登録番号「0」~「2」と「4」とには既に登録用原ドットパターンデータが格納登録されているので、これらの登録番号の各々の右隣に登録マーク「*」が同時に表示される。

【0023】次に、カーソル右移動キー又はカーソル左移動キーが操作されたときには(S22・S23:Yes)、カーソルKがカーソル移動キーの種類に応じて、1桁右側の登録番号又は左側の登録番号に移動して表示され(S24)、S22に戻る。そして実行キーが操作されたときには(S22:Yes、S23:No、S25:Yes)、カーソルKで指示する登録番号XがRAM40のワークバッファに格納され(S26)、パターン作成処理制御(図8参照)が実行される(S27)。

【0024】この制御が開始され、登録番号Xに対応する登録データメモリ42a~42jに登録用ドットパターンデータが存在しないときには(S32:No)、サイズポインタ値PTには、デフォルトのサイズ項目の先頭アドレスαがセットされ(S35)、このデフォルトのサイズの為の登録データ入力画面がディスプレイ22に表示されるとともに、このサイズの構成ドット数からなる方形の登録メモリエリアHが登録番号Xに対応する

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登録データメモリ42a~42jに設けられる(S36)。例えば、図5・図13に示すように、サイズポインタ値PT1にデフォルトのサイズ項目「M」の先頭アドレスαがセットされ、サイズ「M」で32ドット数とするデフォルトサイズの為の登録データ入力画面がディスプレイ22に表示されるとともに、図17に示すように、登録番号「3」に対応する登録データメモリ42dに、32ドット×32ドットからなる登録メモリエリアHが設けられる。

【0025】ここで、この登録データ入力画面の左端部には、登録ドットパターン表示領域(登録データ表示領域に相当する)Dが設けられ、この表示領域Dにおいては、縦方向には32ドット分表示可能で、横方向には現在のサイズのドット数分表示可能になっている。更に、入力画面の右端部の上半部には、現在のサイズのドットパターンの大きさに対する登録ドットパターン表示領域Dの表示範囲を示す表示範囲指示エリアEが設けられている。尚、この指示エリアEは16ドット×16ドットの大きさで構成されている。ところで、この制御が開始されたときに、登録番号Xに対応する登録データメモリ42a~42jに登録用ドットパターンデータが存在するときには(S32:Yes)、そのドットパターンデータに付随して登録されているサイズポインタ値がサイズポインタPTにセットされ(S33)、このサイズポインタ値の為の登録データ入力画面が表示されるとともに、その登録用ドットパターンデータが登録ドットパターン表示領域Dに表示される(S34)。

【0026】次に、表示範囲指示エリアEにディスプレイ対応マーカーMを表示する為、先頭表示行ポインタTPに初期値「0」、末尾表示行ポインタBPに初期値「31」、先頭ドット行ポインタTDLに初期値「0」、末尾ドット行ポインタBDLに現在のサイズポインタPTが指示するサイズのドット数「N」、カーソルポインタKPに初期値「0」が夫々セットされ(S37)、マーカー表示処理制御(図9参照)が実行される(S38)。この制御が開始されると、まずサイズポインタ値PTに基づいて現在のサイズのドット数「N」を16ドットに縮小する比率βが求められる(S50)。例えば、図13に示すように、現在のサイズが「M」のときには、縮小比率β=0.5が求められる。

【0027】次に、縮小比率βに基づいて、先頭表示行ポインタTPに対応するマーカー先頭ポインタtpの位置と、末尾表示行ポインタBPに対応するマーカー末尾ポインタbpの位置が夫々求められ、これらマーカー先頭ポインタ値tpからマーカー末尾ポインタ値bpに互って全て「1」のドットデータからなるマーカーデータが指示エリアバッファ45に格納される(S51)。そして、登録メモリエリアHのうちの、表示エリア部分DPの上側の未表示部分の縦ドット数を縮小比率βで縮小するとき、縮小した縦ドット数(TP・β)が「0」よ

りも大きく且つ「1」よりも小さいときには(S52: Yes)、マーカーデータの先頭の1ドット行に空白が設けられてマーカー先頭ポインタ値tpが1つ大きい値に補正され(S53)、また表示エリア部分DPの下側の未表示部分の縦ドット数を縮小比率 β で縮小するとき、縮小した縦ドット数 $((BDL-BP) \cdot \beta)$ が「0」よりも大きく且つ「1」よりも小さいときには(S54: Yes)、マーカーデータの末尾の1ドット行に空白が設けられてマーカー末尾ポインタ値bpが1つ小さい値に補正される(S55)。

【0028】次に、登録メモリエリアHを縮小した16ドット×16ドットからなる大きさの表示範囲指示エリアEが登録データ入力画面に表示され(S56)、更にマーカー先頭ポインタ値tpとマーカー末尾ポインタ値bpとに基いて、この表示範囲指示エリアE内に、マーカーMが反転表示され(S57)、この制御を終了して、パターン作成処理制御のS39にリターンする。例えば、図13に示すように、登録データ入力画面に表示範囲指示エリアEが表示されるとともに、この表示範囲指示エリアE全体にマーカーMが反転表示される。

【0029】次に、カーソル移動キーやシフトキー或いは機能キーなどのパターン作成キーが操作されたときには(S39・S40: Yes)、描画処理制御(図10参照)が実行される(S41)、この制御が開始され、操作されたキーがカーソル下移動キーのときには(S60: Yes)、カーソルポインタ値KPが1つインクリメントされ(S61)、カーソルポインタ値KPが末尾表示行ポインタ値BPに等しくなくいつきつまり登録ドットパターン表示領域Dのドットカーソルkがこの表示領域Dの最下行表示位置でないときには(S62: No)、この制御を終了して、パターン作成処理制御のS39にリターンする。

【0030】一方、操作されたキーがカーソル上移動キーのときには(S60: No、67: Yes)、カーソルポインタ値KPが1つデクリメントされ(S68)、カーソルポインタ値KPが先頭表示行ポインタ値TPに等しくなくいつきつまりドットカーソルkがこの表示領域Dの最上行表示位置でないときには(S69: No)、この制御を終了して、同様にS39にリターンする。ところで、操作されたキーがカーソル左・右移動キーのときには(S60・S67: No、73: Yes)、ドットカーソルkの移動処理が実行され(S74)、この制御を終了して同様にS39にリターンする。更に、操作されたキーがシフトキーや機能キーのときには(S60・S67・S73: No)、ドットデータを「1」又は「0」とする描画データが作成され(S75)、同様にS39にリターンする。

【0031】次に、拡大縮小キーが操作されたときには(S39: Yes、S40: No、S42: Yes)、パターンデータ拡大・縮小処理制御が実行され(S4

3)、その後S34及びS37~S38が実行される。

この拡大・縮小処理制御は本発明に直接関係しないので、簡単に説明すると、カーソル下移動キーの操作で

サイズポインタ値PTが1つインクリメントされて、サイズ・ドット数対応テーブルTBの次のサイズ項目が指示され、またカーソル上移動キーの操作でサイズポインタ値PTが1つデクリメントされて、前のサイズ項目が指示され、このサイズに拡大処理又は縮小処理された登録用ドットパターンデータが拡大縮小ドットパターンメモリ44に格納されるとともに、S34でサイズポインタ値PTに基づいたサイズの登録ドットパターン表示領域Dに表示される。

【0032】ここで、サイズ「EL」を指定したときの前記S37及びS38におけるマーカー表示処理制御について、図14~図15、図18~図20に基いて詳しく説明する。サイズ「EL」が指定されたときには、図18に示すように、登録データメモリ42dには、96ドット×96ドットからなる登録メモリエリアHが設けられ、先頭表示行ポインタTP0に「0」、末尾表示行ポインタBP0に「31」、先頭ドット行ポインタTDLに「0」、末尾ドット行ポインタBDLに現在のサイズのドット数「N(96)」、カーソルポインタKPに「0」が夫々セットされる。

【0033】そして、縮小比率 $\beta=0.16$ に基いて、図19に示すように、指示エリアバッファ45におけるマーカー先頭ポインタ値tpとマーカー末尾ポインタ値bpとが夫々求められる。このとき、表示エリア部分DP0の上側の縮小した縦ドット数 $(TP \cdot \beta)$ が「0」となり且つ表示エリア部分DP0の下側の縮小した縦ドット数 $((BDL-BP) \cdot \beta)$ が「1」よりも大きいので、図14・図19に示すように、マーカー先頭ポインタ値tpからマーカー末尾ポインタ値bpに亘って全て「1」のドットデータからなるマーカーデータが作成され、このマーカーデータに基いて、表示範囲指示エリアEにマーカーMが反転表示される。

【0034】一方、描画処理制御を実行中に、カーソル下移動キーが操作されたときには(S60: Yes)、カーソルポインタ値KPが1つインクリメントされ(S61)、カーソルポインタ値KPと末尾表示行ポインタ値BPとが等しいときには(S62: Yes)、先頭表示行ポインタ値TPと末尾表示行ポインタ値BPとに「24」が夫々加算される(S63)。即ち、図18に示すように、先頭表示行ポインタ値TP1と末尾表示行ポインタ値BP1とにより求められた2点鎖線で示す表示エリア部分DP1に基いて、図14に示すように登録用ドットパターンデータの一画面部分が登録ドットパターン表示領域Dに表示される。そして、マーカー表示処理制御により、図20に示すように新規のマーカー先頭ポインタ値tpとマーカー末尾ポインタ値bpとが夫々求められ、図15に示すように、上方にスクロールした

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新規の登録用ドットパターンデータの次の1画面部分が表示されるとともに、表示範囲指示エリアEの新規の位置にマーカーMが反転表示される。

【0035】一方、下カーソル移動キーを複数回操作した結果、図18に示すように、先頭表示行ポインタ値TP2と末尾表示行ポインタ値BP2とに基いて、表示エリア部分DP2の下側の縮小縦ドット数 $((BDL-BP) \cdot \beta)$ が1ドット未満になったとき、図21に示すように、マーカー末尾ポインタ値bpが「1」だけ小さく補正され、指示エリアバッファ45の末尾ドット行に空白行が設けられ、マーカー先頭ポインタ値tpからマーカー末尾ポインタ値bpに亘って全て「1」のドットデータからなるマーカーデータが作成され、このマーカーデータに基いて、表示範囲指示エリアEにディスプレイ対応マーカーMが反転表示される。

【0036】ところで、前述したように、サイズが「M」のときには、その構成ドット数が「32」なので、このときの登録ドットパターンデータは登録ドットパターン表示領域Dに一括表示可能なので、図17に示すように、指示エリアバッファ45において、マーカー先頭ポインタtpはその先頭ドット行を指示し且つマーカー末尾ポインタbpはその末尾ドット行を指示することから、マーカーデータは指示エリアバッファ45全域に亘って作成され、図13に示すように、表示範囲指示エリアE全体にディスプレイ対応マーカーMが反転表示される。

【0037】次に、パターン作成処理制御において、実行キーが操作されたときには(S39:Yes、S40・S42:No、S44:Yes)、拡大縮小ドットパターンメモリ44の登録用ドットパターンデータを登録番号Xに対応する登録データメモリ42a~42jに格納するパターンデータ登録処理が実行され(S45)、この制御及びパターン作成・登録処理制御を終了して、テープ印字制御のS11にリターンする。

【0038】しかし、キャンセルキーが操作されたときには(S39:Yes、S40・S42・S44:No、S46:Yes)、拡大縮小ドットパターンメモリ44の登録用ドットパターンデータをクリアするなどの終了処理が実行され(S47)、同様にテープ印字制御のS11にリターンする。また、パターン作成・登録処理制御の実行中にキャンセルキーが操作されたときには(S22:Yes、S23・S25:No、S28:Yes)、登録番号選択画面を消去するなどの終了処理が実行され(S29)、同様にテープ印字制御のS11にリターンする。更に、テープ印字制御において、文書作成キーや登録キー以外のキーとして、例えば、印字キーが操作されたときには(S11:Yes、S12・S15:No)、操作されたキーに対応する印字処理が夫々実行され(S17)、S11に戻る。

【0039】以上説明したように、入力した登録用ドッ

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トパターンデータがディスプレイ22に表示された登録データ入力画面の登録ドットパターン表示領域Dに表示される一方、登録メモリエリアHを縮小した表示範囲指示エリアEが登録データ入力画面に表示されるとともに、登録メモリエリアHのうちのディスプレイ22に表示されている表示エリア部分DPを縮小したディスプレイ対応マーカーMが登録データ入力画面のうちの表示範囲指示エリアE内に反転表示されるので、作成中のパターンの位置が登録パターン全体に対する何れの位置であるかを容易に確認でき、大きなサイズの登録パターンをバランス良く簡単に作成できる。更に、スクロール操作を大幅に省略できることから作業能率を向上させることができる。

【0040】更に、登録メモリエリアHのうちの、表示エリア部分DPの上側の未表示部分の縦ドット数を縮小比率 β で縮小した縦ドット数 $(TP \cdot \beta)$ が「0」よりも大きく且つ「1」よりも小さいときには、マーカーデータの先頭の1ドット行に空白行が設けられ、また表示エリア部分DPの下側の未表示部分の縦ドット数を縮小比率 β で縮小した縦ドット数 $((BDL-BP) \cdot \beta)$ が「0」よりも大きく且つ「1」よりも小さいときには、マーカーデータの末尾の1ドット行に空白行が設けられ、ディスプレイ対応マーカーMの最上行又は最下行の1ドット行分だけ空白ドット行で表示されるので、登録メモリエリアHに対する表示エリア部分DPをその先頭位置から末尾位置に亘って確実に認識することができる。

【0041】ここで、特許請求の範囲(請求項1)に記載した各手段と、上記実施例中の構成との対応関係について説明すると、モード設定手段に相当するものは、キーボード3に設けられた登録キーであり、サイズ指定手段に相当するものは、ROM32に設けられたサイズ・ドット数対応テーブルTBのサイズ項目を指示するサイズポインタPTとこのサイズポインタPTを変更するカーソル移動キーなどであり、登録データ記憶手段に相当するものは、RAM40に設けられた登録メモリ42であり、指示エリア表示制御手段に相当するものは、マーカー表示処理制御のS56及び制御装置Cであり、マーカー表示制御手段に相当するものは、マーカー表示処理制御及び制御装置Cである。

【0042】尚、表示範囲指示エリアEは16ドット×16ドットの大きさに限られるものではなく、ドット数の異なる矩形形状であってもよい。また、ディスプレイ対応マーカーMを点滅表示など識別可能に表示させることが可能である。尚、小型のディスプレイやドット方式の印字機構を備え、パターン登録機能を設けた種々のテープ印刷装置の登録用ドットパターンデータ作成装置に本発明を適用し得ることは勿論である。

【0043】

【発明の効果】以上説明したように、請求項1に係るテ

テープ印刷装置の登録用ドットパターンデータ作成装置によれば、モード設定手段と、サイズ指定手段と、登録データ記憶手段と、指示エリア表示制御手段と、マーカー表示制御手段とを設け、入力した登録用ドットパターンデータがディスプレイに表示された登録データ入力画面の登録データ表示領域にされる一方、登録メモリエリアを縮小した表示範囲指示エリアが登録データ入力画面に表示されるとともに、登録メモリエリアのうちのディスプレイに表示されている表示エリア部分を縮小したディスプレイ対応マーカーが登録データ入力画面のうちの表示範囲指示エリア内に識別可能に表示されるので、作成中のパターンの位置が登録パターン全体に対する何れの位置であるかを容易に確認でき、大きなサイズの登録パターンをバランス良く作成できる。更に、スクロール操作を大幅に省略できることから作業能率を向上させることができる。

【0044】尚、前記指示エリア表示制御手段とマーカー表示制御手段は、登録メモリエリアのうちの、表示エリア部分の上側又は下側の縦ドット数を前記縮小比率で縮小して表示範囲指示エリアの縦ドット数に変換するときに、変換縦ドット数が1ドット未満のときには1ドットに切上げるように構成する場合（請求項2）には、ディスプレイ対応マーカーの最上行又は最下行の1ドット行分だけ空白ドット行で表示されるので、登録メモリエリアに対する表示エリア部分をその先頭位置から末尾位置に互って確実に認識することができる。

【図面の簡単な説明】

【図1】請求項1の構成を示す機能ブロック図である。

【図2】テープ印刷装置の平面図である。

【図3】印字機構の概略平面図である。

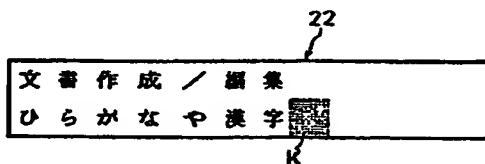
【図4】テープ印刷装置の制御系のブロック図である。

【図5】サイズ・ドット数対応テーブルのデータ構成を説明する図表である。

【図6】テープ印字制御のルーチンの概略フローチャートである。

【図7】パターン作成・登録処理制御のルーチンの概略フローチャートである。

【図11】



【図8】パターン作成処理制御のルーチンの概略フローチャートである。

【図9】マーカー表示処理制御のルーチンの概略フローチャートである。

【図10】描画処理制御のルーチンの概略フローチャートである。

【図11】文書入力画面の表示例を示す図である。

【図12】登録番号選択画面の表示例を示す図である。

【図13】登録データ作成画面の表示例を示す図である。

【図14】拡大登録データ入力画面の表示例を示す図である。

【図15】表示エリア部分が異なる図14相当図である。

【図16】登録データメモリ内の登録メモリエリアを説明する説明図である。

【図17】指示エリアバッファ内のマーカーデータを説明する説明図である。

【図18】サイズ「EL」の登録メモリエリアを説明する説明図である。

【図19】サイズ「EL」のときのマーカーデータを説明する説明図である。

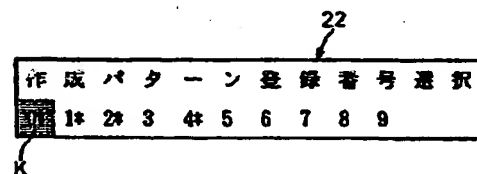
【図20】下側に移動したマーカーデータを示す図19相当図である。

【図21】最下端に移動したマーカーデータを示す図19相当図である。

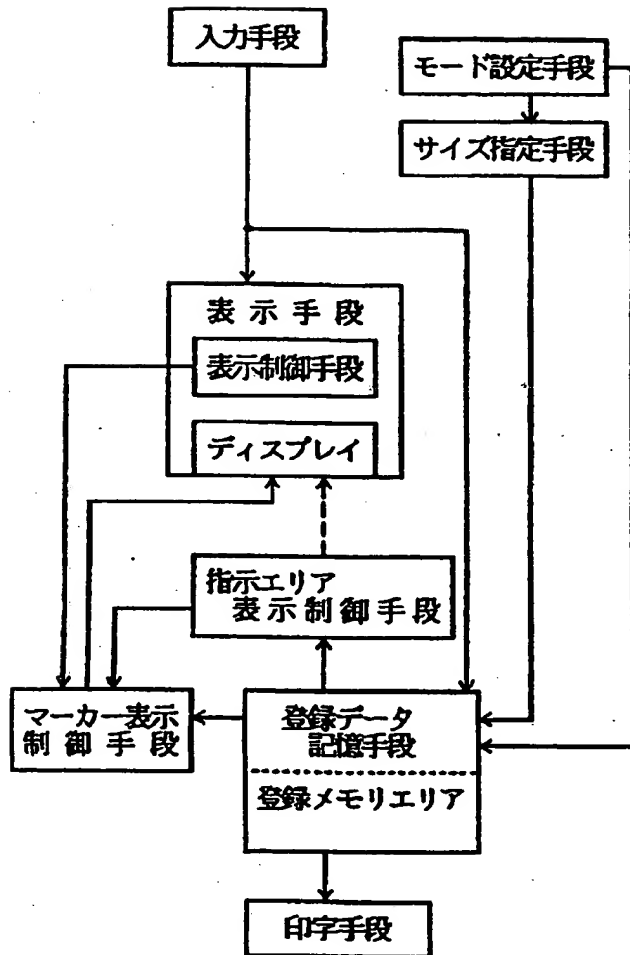
【符号の説明】

- 1 テープ印刷装置
- 3 キーボード
- 13 サーマルヘッド
- 22 液晶ディスプレイ
- 29 CPU
- 32 ROM
- 40 RAM
- 42 登録メモリ
- C 制御装置
- PM 印字機構

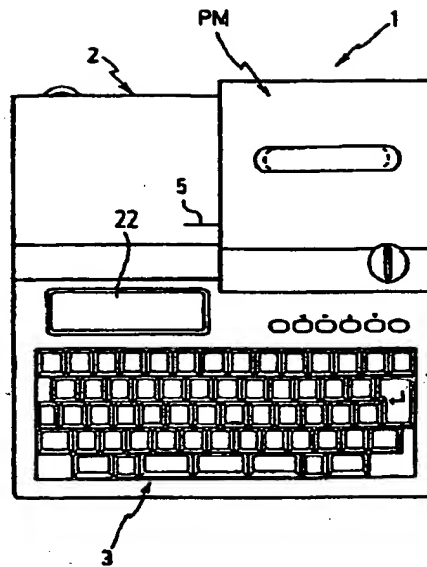
【図12】



【図1】



【図2】



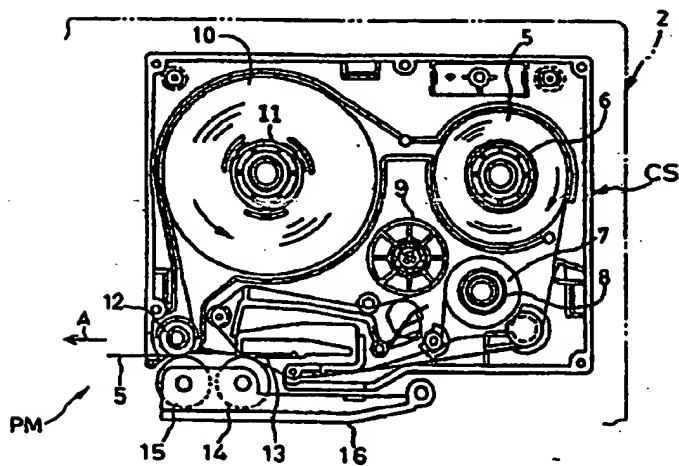
【図5】

Table showing font size options (Figure 5):

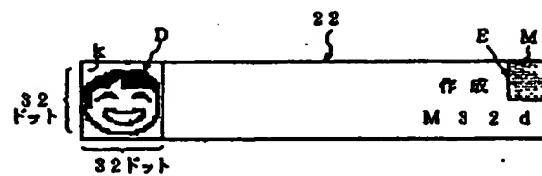
サイズ	ドット数
SS	16
S	24
M	32
L	48
LL	64
EL	96
XL	112
8ミリ	28
9ミリ	48
12ミリ	56
18ミリ	84
24ミリ	128

Additional labels: PT1 points to the 'M' row (32 dots), PT2 points to the '9ミリ' row (48 dots). The '通常のサイズ' (Normal size) label is positioned between PT1 and PT2. The 'テーブル幅に
対応するサイズ' (Size corresponding to table width) label is positioned below PT2.

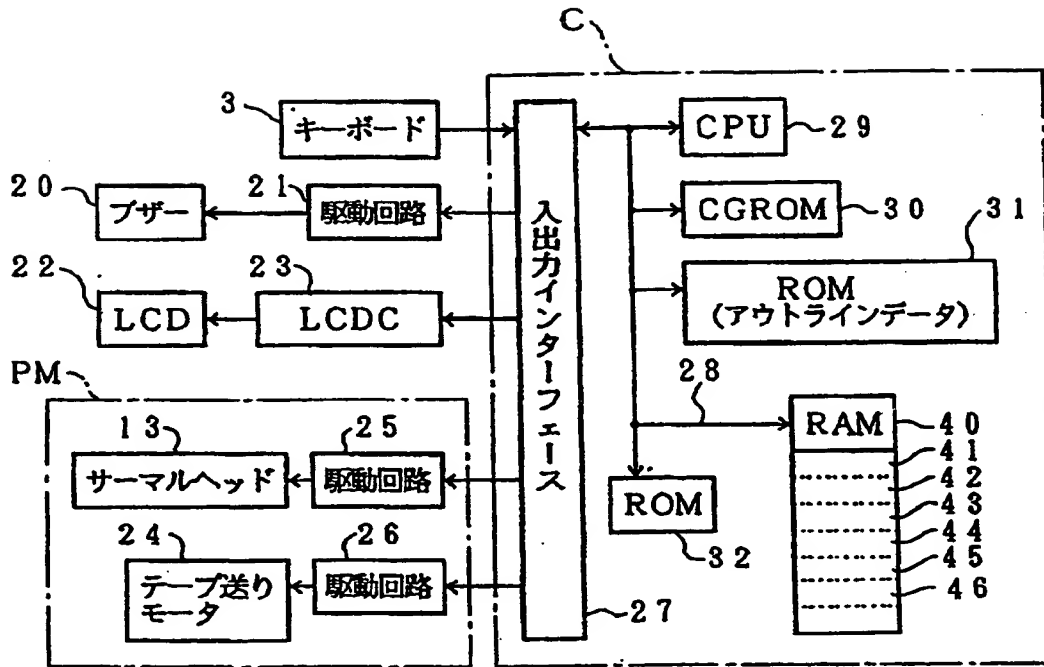
【図3】



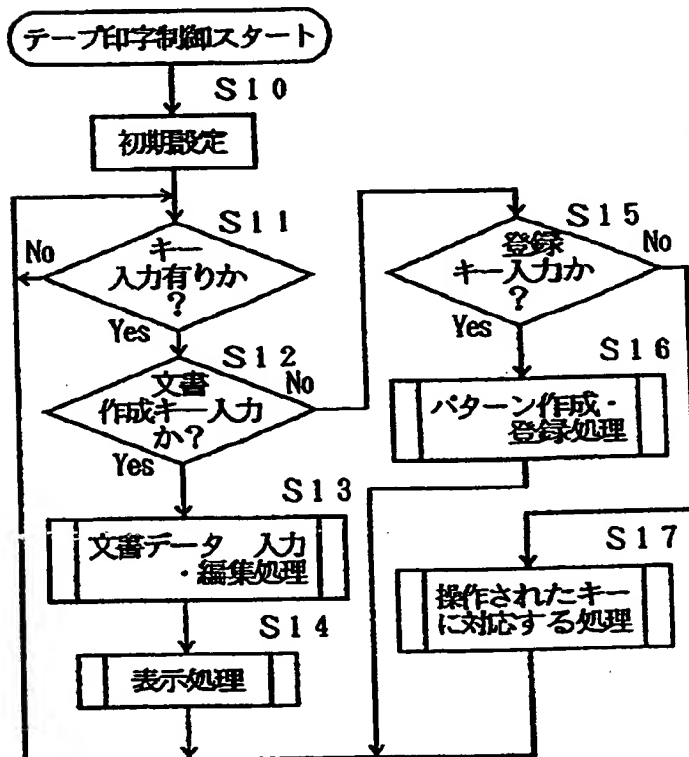
【図13】



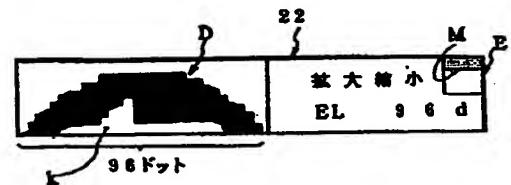
【図4】



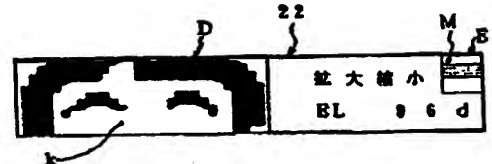
【図6】



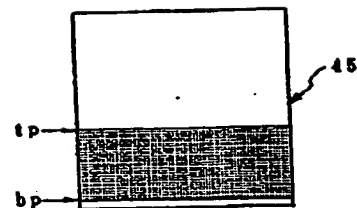
【図14】



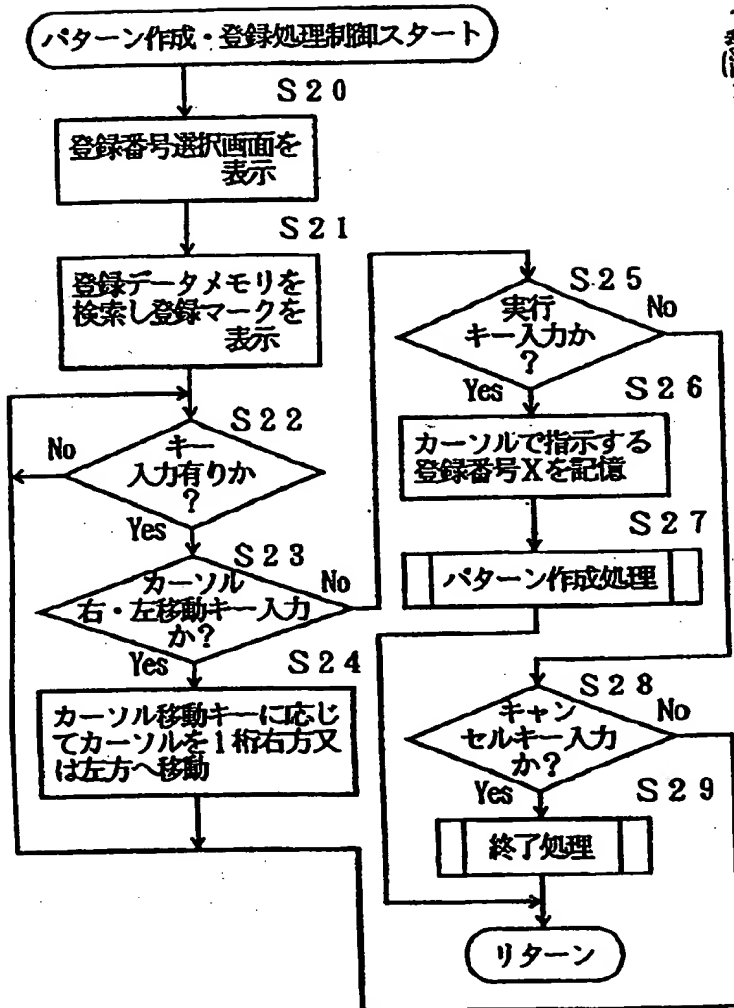
【図15】



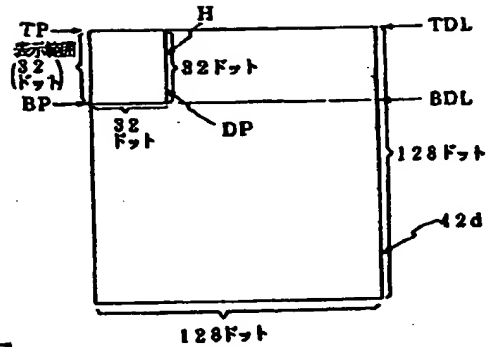
【図21】



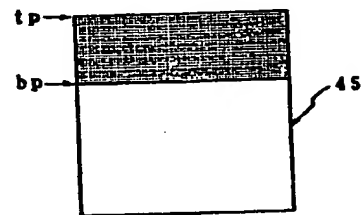
【図7】



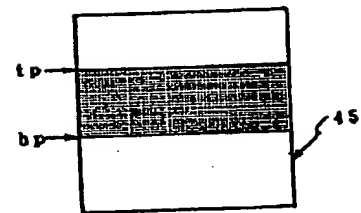
【図16】



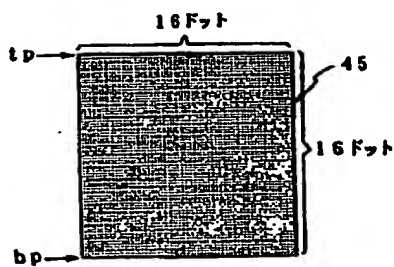
【図19】



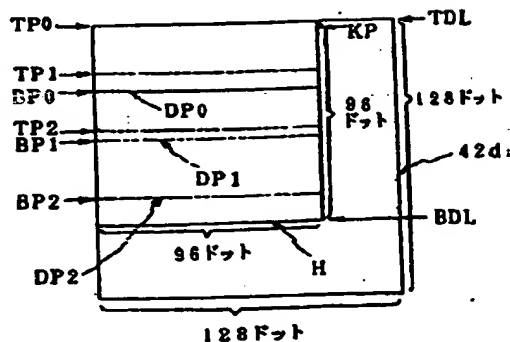
【図20】



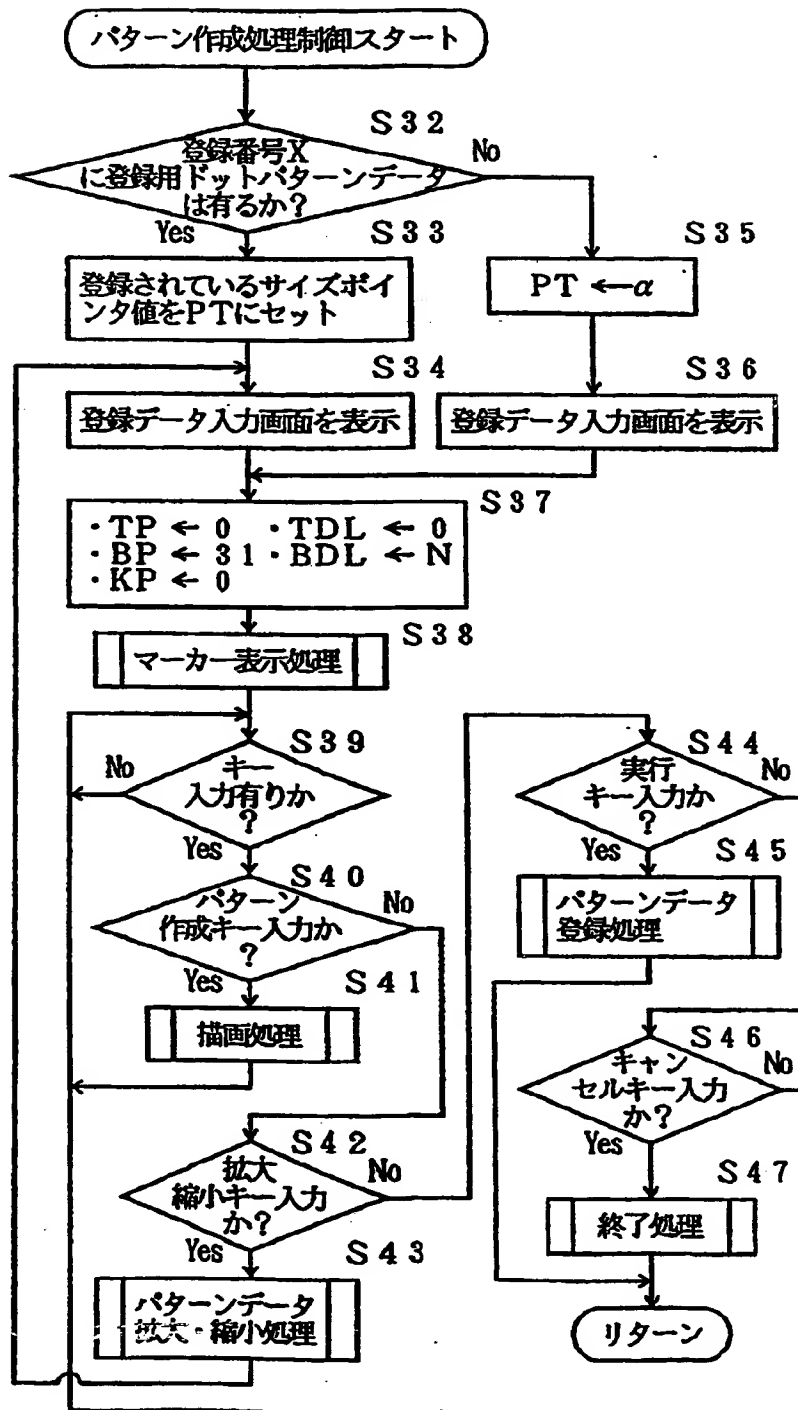
【図17】



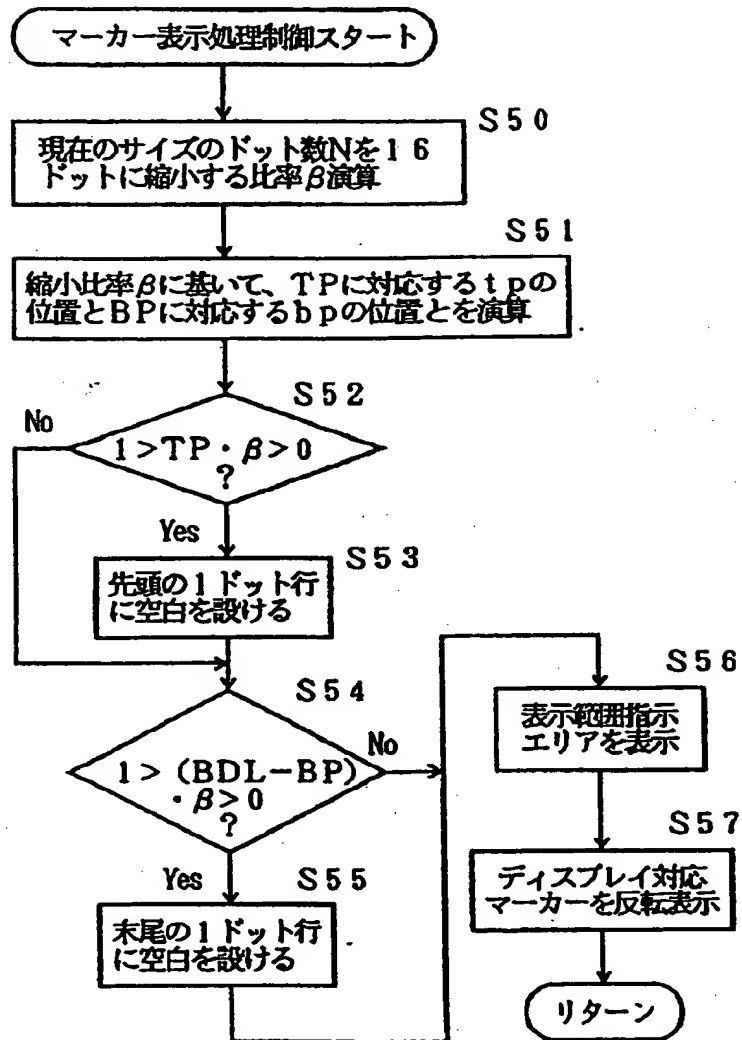
【図18】



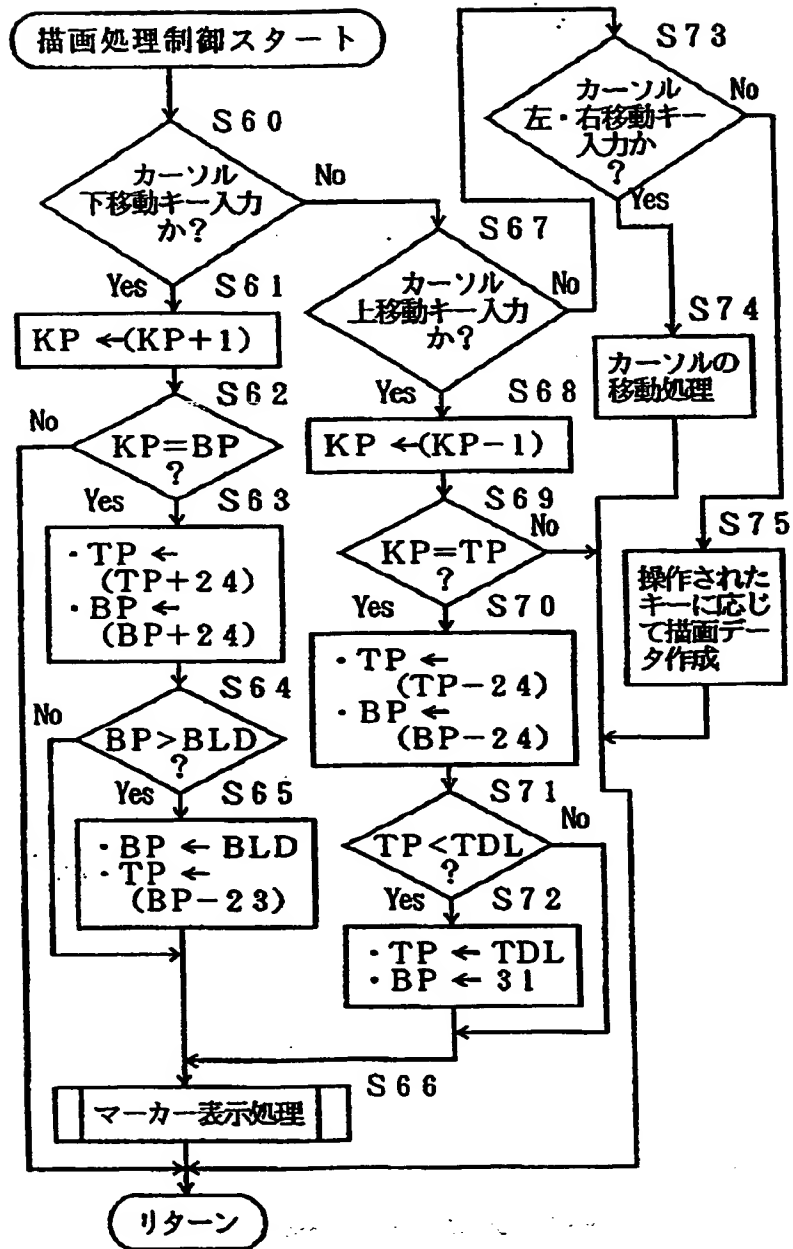
【図8】



【図9】



【図10】



フロントページの続き

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技術表示箇所

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1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.

3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The input means for inputting an alphabetic character, a notation, and various commands, and the printing means containing the print head which prints an alphabetic character and a mark on the tape as a printing medium by the dot pattern, In the tape airline printer equipped with the display means including the display and display-control means of the number of vertical dots smaller than the number of dots of a print head In a mode setting means to set up the register mode which creates and registers an alphabetic character and the dot pattern data of a mark, the size assignment means for specifying the alphabetic character registered in said register mode, and the size of a mark, and said register mode A registration data storage means to memorize the alphabetic character and the dot pattern data for registration of a mark which were inputted into the registration data display field of the registration data input screens displayed on the display, A directions area display-control means to display on said registration data input screen the display rectangle directions area of the predetermined magnitude which reduced the registration memory area of the size specified with said size assignment means in said registration data storage means, The marker corresponding to the display which reduced the display area part currently displayed on the display of said registration memory areas by the contraction ratio of said display rectangle directions area and rate of said Dot pattern data origination equipment for registration of the tape airline printer characterized by having the marker display-control means displayed identifiable in said display rectangle directions area of said registration data input screens.

[Claim 2] Said directions area display-control means and a marker display-control means are dot pattern data-origination equipment for registration of the tape airline printer according to claim 1 characterized by to be constituted so that it may revalue to 1 dot when reducing the number of vertical dots of said display area part top of said registration memory areas , or the bottom by said contraction ratio , and changing into the number of vertical dots of display-rectangle directions area , and the number of conversion length dots is less than 1 dot .

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Industrial Application] This invention relates to what enabled pattern registration of an alphabetic character, a mark, etc. using the small display especially about the dot pattern data origination equipment for registration of a tape airline printer.

[0002]

[Description of the Prior Art] Conventionally, in the object for Japanese, the word processor for English, etc., it has fundamentally the large-sized display which can display the data of a keyboard or the document for a multi-line, the printing mechanism of a dot method, etc., and while the data of the inputted document are displayed on a display and memorized by text memory, they are printable at the print form based on the printing format set up including a class, printing size, etc. of a print form. By the way, practical use is presented with what added the pattern add function which can draw freely in the magnitude of a dot pattern which consists of the predetermined number of configuration dots (for example, 48 dots or 56 dots), and moreover memorized registration patterns which a user demands, such as an alphabetic character, a mark, and an illustration, to storages, such as a floppy disk, by moving a small pointer or small cursor to the latest word processor. Therefore, based on said printing format, about registration pattern data, it is independent or printable by the desired character size in the location of the arbitration in document data.

[0003] by the way, an applicant for this patent like a publication in the real extraction-of-the-square-root 1-No. 85050 official report etc. The transparent printing tape as a printing medium (for example, 18mm 12mm 9mm) In order to print characters, such as an alphabetic character and a notation, on a tape with a width of face of 24mm While it has the printing mechanism which prepared the thermal head which made the lengthwise direction install successively 128 heater elements corresponding to 128 dots, and the printing ribbon The outline font data for printing a character is formed in a control unit. While displaying the character inputted from the keyboard in a lengthwise direction on the small display of the shape of an oblong rectangle with the number of dots smaller than the number of dots of a thermal head (for example, 32 dots) The tape airline printer it was made to print on a printing tape through a printing ribbon and a thermal head was put in practical use.

[0004]

[Problem(s) to be Solved by the Invention] When adding the pattern add function mentioned above in the tape airline printer which said applicant for this patent proposed, since only the number of dots smaller than the number of dots of a thermal head is prepared in the lengthwise direction, a display When drawing in the magnitude of the dot pattern which the number of configuration dots becomes from 96 dots or 128 dots The registration pattern which registers this dot pattern cannot be displayed collectively, but the whole registration pattern will be displayed by division display, making the upper part or a lower part scroll a part of that registration pattern. Consequently, since it does not know whether the location of a pattern in preparation is which location to the whole registration pattern, that it is very difficult to create a registration pattern with sufficient balance, and in order to check the balance of a registration

pattern further, the count of scrolling increases and there are problems, like being operability and working capacity is bad.

[0005] The purpose of this invention is offering the dot pattern data origination equipment for registration of the tape airline printer which can create the registration pattern of big size with sufficient balance, and may moreover improve working capacity.

[0006]

[Means for Solving the Problem] The dot pattern data origination equipment for registration of the tape airline printer concerning claim 1 The input means for inputting an alphabetic character, a notation, and various commands, as shown in the functional block diagram of drawing 1 , The printing means containing the print head which prints an alphabetic character and a mark on the tape as a printing medium by the dot pattern, In the tape airline printer equipped with the display means including the display and display-control means of the number of vertical dots smaller than the number of dots of a print head In a mode setting means to set up the register mode which creates and registers an alphabetic character and the dot pattern data of a mark, the size assignment means for specifying the alphabetic character registered in register mode, and the size of a mark, and register mode A registration data storage means to memorize the alphabetic character and the dot pattern data for registration of a mark which were inputted into the registration data display field of the registration data input screens displayed on the display, A directions area display-control means to display on a registration data input screen the display rectangle directions area of the predetermined magnitude which reduced the registration memory area of the size specified with the size assignment means in a registration data storage means, The marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas by the contraction ratio of display rectangle directions area and the rate of said It has the marker display-control means displayed identifiable in the display rectangle directions area of the registration data input screens.

[0007] In addition, when reducing the number of vertical dots of the display area part top of the registration memory areas, or the bottom by said contraction ratio, and changing into the number of vertical dots of display rectangle directions area, and the number of conversion length dots is less than 1 dot, said directions area display-control means and a marker display-control means may be constituted so that it may revalue to 1 dot.

[0008]

[Function] In the dot pattern data origination equipment for registration of the tape airline printer concerning claim 1 Since a mode setting means sets up the register mode which creates and registers an alphabetic character and the dot pattern data of a mark and a size assignment means specifies the alphabetic character registered in register mode, and the size of a mark A registration data storage means memorizes the alphabetic character and the dot pattern data for registration of a mark which were inputted into the registration data display field of the registration data input screens displayed on the display in register mode to the registration memory area of the size specified with the size assignment means. On the other hand, a directions area display-control means displays on a registration data input screen the display rectangle directions area of the predetermined magnitude which reduced the registration memory area in a registration data storage means. Furthermore, a marker display-control means displays the marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas by the contraction ratio of display rectangle directions area and the rate of said identifiable in the display rectangle directions area of the registration data input screens.

[0009] Thus, while the inputted dot pattern data for registration are displayed on the registration data display field of the registration data input screen displayed on the display While the display rectangle directions area which reduced the registration memory area is displayed on a registration data input screen Since the marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas is displayed identifiable in the display rectangle directions area of the registration data input screens it can check easily whether the location of a pattern in preparation is which location to the whole registration pattern, the registration pattern of big size can be easily created with sufficient

balance, and, moreover, working capacity is raised — deep — it can **.

[0010]

[Example] Hereafter, the example of this invention is explained based on a drawing. This example is a thing at the time of applying this invention for many a character and creation patterns, such as a kanji, a hiragana, and an alpha character, to the tape airline printer printable on the tape for printing (tape as a printing medium) Japanese and for English. As shown in drawing 2, a keyboard 3 is arranged in the anterior part of the body frame 2 of the tape airline printer 1, and the printing mechanism PM which has a thermal head 13 is arranged in the body frame 2 behind a keyboard 3, and the alphabetic character and the notation are formed in the small liquid crystal display 22 which can be displayed by two lines behind the keyboard 3.

[0011] The letter key [a keyboard 3] which can two or more kind generate character codes, such as the alphabet, a hiragana, a figure, and a notation, The cursor movement key for moving the cursor K displayed on the space key, the return key, and the display 22 in the direction of four directions, respectively, The registration key which registers created patterns, such as a non-changed key, a conversion key, an alphabetic character, and a mark, The function key for performing a different function combining keys which expand or direct [contraction] the created pattern, such as an enlarging-or-contracting key and a cursor movement key, The power-source key for ON-OFF [the tape-feed key for carrying out the tape feed of the Enter key which decides a setup under various kinds of processings etc., the printing key which performs printing, and the tape 5 for printing, and a power source] etc. is prepared.

[0012] If a printing mechanism PM is briefly explained based on drawing 3, it will be equipped with the rectangle-like tape receipt cassette CS removable. Next, to this tape receipt cassette CS The tape spool 6 with which the tape 5 for printing which consists of a transparent film was looped around, The ribbon feed spool 8 with which the ink ribbon 7 was looped around, and the take-up spool 9 which rolls round this ink ribbon 7, The double-sided tape 10 which has the same width of face as the tape 5 for printing is formed free [rotation of the junction roller 12 to which the feed spool 11 around which the condition of having made the releasing paper sticking outside was looped, and the tape 5 for these printing and a double-sided tape 10 are joined]. Here, the thing of five kinds of dedication which makes tape width of the tape 5 for printing 6mm, 9mm, 12mm, 18mm, and 24mm is prepared as said tape receipt cassette CS.

[0013] A thermal head 13 is set up by the location with which the tape 5 for printing and an ink ribbon 7 lap, and the delivery roller 15 which presses the platen roller 14 which presses the tape 5 for these printing and an ink ribbon 7 to a thermal head 13, and the tape 5 for printing and a double-sided tape 10 on the junction roller 12 is supported pivotably by the base material 16 pivotable in it. Furthermore, 128 heater elements are installed successively by this thermal head 13 in the vertical direction in the shape of close.

[0014] Therefore, while the junction roller 12 and a take-up spool 9 drive respectively synchronizing with a predetermined hand of cut by the drive to the predetermined hand of cut of the tape-feed motor 24 (refer to drawing 4), when it energizes to a heater element, on the tape 5 for printing, an alphabetic character and a notation are printed by two or more dot trains, and where a double-sided tape 10 is joined to the printing side, moreover, the tape feed of the tape 5 for printing after printing is carried out in the direction A of a tape feed. In addition, refer to the publication-number 2-No. 106555 official report about the detail of a printing mechanism PM.

[0015] Next, the control system of the tape airline printer 1 is constituted as shown in the block diagram of drawing 4. With a keyboard 3 and the display controller 23 who has RAM for a display for outputting an indicative data to a liquid crystal display (LCD) 22 (LCDC) The drive circuit 26 for driving the tape-feed motor 24 which carries out the rotation drive of the drive circuit 25 for driving a thermal head 13, two or more spools which looped around said tape 5 for printing and ink ribbon 7, and the double-sided tape 10, and the various rollers, It connects with the input/output interface 27 of a control unit C in the drive circuit 21 for the buzzer 20 for warning, respectively. the lengthwise direction of this display 22 is resembled be shown in drawing 13, and 32 dots fewer than the number of heater elements of a thermal head 13 are consisted of. The control device C consists of CPU29, and the input/output interface 27 connected to this CPU29 through the buses 28, such as a data bus, CGROM30 and ROM 31-32 and RAM40. Here,

the dot pattern data origination equipment for registration consists of registration keys, cursor movement keys, etc. which were prepared in the control device C and the keyboard 3.

[0016] About each of many characters, the dot pattern data for a display make code data correspond to CGROM (pattern data memory)30, and are stored in it. In order to print a character, the border-line data (outline data) which specify the border line of a character are classified into every typefaces (Mincho a Gothic system typeface, system typeface, etc.) about each of many characters, code data are made to correspond to ROM (outline data memory)31, and it is stored in it.

[0017] The display drive control program which the code data of characters, such as an alphabetic character, a figure, and a notation, inputted into ROM32 from the keyboard 3 are made to correspond, and controls a display controller 23, The image expansion processing control program which carries out transform processing to the dot pattern data for printing from the outline data corresponding to each code data of the text memory 41 and which is developed to a print buffer 46, The printing drive control program which reads the data of a print buffer 46 one by one, and drives a thermal head 13 and the tape-feed motor 24, the control program of the below-mentioned tape printing control, etc. are stored. Furthermore, in order to create an alphabetic character, a mark, etc., as shown in drawing 5, the table TB corresponding to the number of size dots to which the "number of dots" which shows sizes, such as "SS", "S", and "M", and the magnitude of a registration pattern was made equivalent is stored in ROM32. In addition, tape width (6mm, 9mm, ...) is contained in this "size" as size, and the "number of dots" of the optimal size according to such tape width is matched with it.

[0018] The code data of an alphabetic character or a notation inputted from the keyboard 3 are stored in the text memory 41 of RAM40 as document data. Ten registration data memory 42a-42j corresponding to registration number "0" - "9" is formed in the registration memory 42, and the size pointer value which shows created dot pattern data for registration, such as an alphabetic character and a mark, and the size of those is stored in it at each of these registration data memory 42a-42j. The size pointer PT which directs the start address of 12 size items which made the size stored in said table TB corresponding to the number of size dots, and the number of dots correspond to the pointer memory 43 The cursor pointer KP for the dot cursor K used for creation of the dot pattern data for registration, The pointer BP which directs the pointer TP which directs the head display line of the registration data memory 42a-42j displayed on the registration dot pattern viewing area D in a registration data input screen, and its tail display line, The pointer BDL which directs the pointer TDL which directs the head dot line of the registration memory area in registration data memory 42a - 42j, and its tail dot line, The pointer value of the pointer bp which directs the pointer tp which directs the head location of the marker in the directions area buffer 45, and its tail location is stored, respectively.

[0019] The enlarging-or-contracting dot pattern data which processed [expansion-] or processed [contraction-] the created dot pattern data for registration are stored in the enlarging-or-contracting dot pattern memory 44. The marker data which consist of dot data for displaying the marker M displayed on the display rectangle directions area E in a registration data input screen are stored in the directions area buffer 45. The dot pattern data for registration read from dot pattern data and the registration memory 42 of the two or more alphabetic characters and the notation by which image expansion was carried out are stored in a print buffer 46. In addition, the text memory 41 and the registration memory 42 of this RAM40 are backed up by the cell, and even if the tape airline printer 1 is turned off, those contents of storing disappear.

[0020] Next, the routine of the tape printing control performed with the control device C of the tape airline printer 1 is explained based on the flow chart shown in drawing 6 - Fig. 1010. In addition, the sign Si in drawing (i= 10, 11, 12) is each step. If a power source is switched on by the power-source key stroke, this tape printing control will be started, initial setting of clearing a printing mechanism PM and each memory 43-46 memory 41 and other than 42 first will be performed, and the document input screen for inputting a document into a display 22 will be displayed (S10). For example, as shown in drawing 11, while "document preparation/edit" is displayed on the upper case line by the display 22, the document input screen which can be

displayed is displayed for the alphabetic character and notation which were inputted into the lower-berth line on it by 12 characters.

[0021] Next, when document preparation keys, such as a conversion key and a non-changed key, are operated in addition to letter keys and numerical keypads, such as a hiragana and katakana, (S11 and S12:Yes), and the inputted hiragana are changed into the kanji. Or the document data input and edit processing control which stores the inputted hiragana, katakana, and a figure and an alpha character in the text memory 41 as a document by no changing are performed (S13). It is indicated by sequential (S14) and the changed kanji, a non-changed hiragana, katakana, and a figure and an alpha character return to the location directed with the cursor K of a display 22 S11. For example, as shown in drawing 11, the inputted document "a hiragana and the kanji" is displayed on a display 22.

[0022] Next, when a registration key is operated during document preparation, (S11:Yes, S12:No, S15:Yes), and register mode are set up, and pattern creation / registration processing control (refer to drawing 7) is performed (S16). ** [initiation of this control / display / first / on a display 22 / a registration number selection screen] — having (S20) — further — all the registration data memory 42a-42j — searching — the original dot pattern data for registration — storing — a registration mark is added and displayed on a registered registration number (S21). For example, since storing registration of the original dot pattern data for registration has already been carried out registration number "0" — "2" and "4" while the registration number selection screen containing registration number [of ten pieces] "0" — "9" is displayed on a display 22, as shown in drawing 12, a registration mark "*" is displayed on each right-hand of these registration numbers by coincidence.

[0023] Next, when a cursor right translation key or a cursor left translation key is operated, (S22 and S23:Yes), and Cursor K are moved and displayed on the registration number on the right-hand side of a single figure, or a left-hand side registration number according to the class of cursor movement key (S24), and return to S22. And when an Enter key is operated, the registration number X directed with (S22:Yes, S23:No, S25:Yes), and Cursor K is stored in the work-piece buffer of RAM40 (S26), and pattern creation processing control (refer to drawing 8) is performed (S27).

[0024] When this control is started and the dot pattern data for registration do not exist in the registration data memory 42a-42j corresponding to a registration number X, to (S32:No) and size pointer value PT While start-address alpha of a default size item is set (S35) and the registration data input screen for this default size is displayed on a display 22 The registration memory area H of the rectangle which consists of the number of configuration dots of this size is formed in the registration data memory 42a-42j corresponding to a registration number X (S36). For example, while the registration data input screen for the default size made into a 32-dot number in size "M" is displayed on a display 22, as are shown in drawing 5 and drawing 13, and start-address alpha of a default size item "M" is set to size pointer value PT1, and it is shown in drawing 17, the registration memory area H set to registration data memory 42d corresponding to a registration number "3" from 32 dot x32 dot is formed.

[0025] Here, the registration dot pattern viewing area (it is equivalent to a registration data display field) D is formed, it can display on a lengthwise direction by 32 dots in this viewing area D, and several dot minute display of current size is attained in the longitudinal direction at the left end section of this registration data input screen. Furthermore, the display rectangle directions area E which shows the display rectangle of the registration dot pattern viewing area D to the magnitude of the dot pattern of the present size is established in the Johan section of the right end section of an input screen. In addition, this directions area E consists of 16 dot x16 dot magnitude. When this control is started, and the dot pattern data for registration exist in the registration data memory 42a-42j corresponding to a registration number X, by the way, (S32:Yes), While the size pointer value registered along with that dot pattern data is set to the size pointer PT (S33) and the registration data input screen for this size pointer value is displayed The dot pattern data for registration is displayed on the registration dot pattern viewing area D (S34).

[0026] Next, in order to display the marker M corresponding to a display on the display rectangle

directions area E To the head display-line pointer TP at initial value "0" and the tail display-line pointer BP Initial value "31", The number of dots of the size which the current size pointer PT directs to the head dot line pointer TDL at the initial value "0" tail dot line pointer BDL "N", Initial value "0" is set to the cursor pointer KP, respectively (S37), and marker display-processing control (refer to drawing 9) is performed (S38). Initiation of this control asks for the ratio beta which reduces the number of dots of current size "N" to 16 dots based on size pointer value PT first (S50). For example, as shown in drawing 13 , when the present size is "M", it is the contraction ratio $\beta = 0.5$. It asks.

[0027] Next, based on the contraction ratio beta, the location of the marker head pointer tp corresponding to the head display-line pointer TP and the location of the marker tail pointer bp corresponding to the tail display-line pointer BP are called for, respectively, and the marker data which consist of dot data of "1" altogether ranging from these marker head pointer value tp to the marker tail pointer value bp are stored in the directions area buffer 45 (S51). And when reducing the number of vertical dots for a non-display of the display area part DP top of the registration memory areas H by the contraction ratio beta When the reduced number of vertical dots (TP-beta) is larger than "0" and smaller than "1", (S52:Yes), When a null is prepared in the 1-dot line of the head of marker data, and it is amended by the value with the marker head pointer value tp large [one] (S53) and the number of vertical dots for a non-display of the display area part DP bottom is reduced by the contraction ratio beta When the reduced number (BDL-BP) of vertical dots (-beta) is larger than "0" and smaller than "1", a null is prepared in the 1-dot line of the tail of (S54:Yes) and marker data, and the marker tail pointer value bp is amended by the value small [one] (S55).

[0028] Next, the display rectangle directions area E of the magnitude which consists of 16 dot x16 dot which reduced the registration memory area H is displayed on a registration data input screen (S56), and based on the marker head pointer value tp and the marker tail pointer value bp, into this display rectangle directions area E, inverse video is carried out (S57), and further, Marker M ends this control and carries out a return to S39 of pattern creation processing control. For example, as shown in drawing 13 , while the display rectangle directions area E is displayed on a registration data input screen, the inverse video of the marker M is carried out to this whole display rectangle directions area E.

[0029] Next, when pattern creation keys, such as a cursor movement key, and a Shift-key or a function key, are operated, (S39 and S40:Yes), and drawing processing control (refer to drawing 10) are performed (S41). Are started, and when the key by which this control was operated is a bottom navigation key of cursor, (S60:Yes), When the dot cursor k of the time D, i.e., a registration dot pattern viewing area, is not the lowest line display location of this viewing area D, by carrying out one increment of the cursor pointer value KP (S61), and the cursor pointer value KP being equally to the tail display-line pointer value BP (S62:No), This control is ended and a return is carried out to S39 of pattern creation processing control.

[0030] The cursor pointer value KP is equally to head display-line pointer value TP, on the other hand, when the operated key is a cursor top navigation key, one decrement of (S60:No, 67:Yes), and the cursor pointer value KP is carried out (S68), when it is not the top line display position of this viewing area D at the time k, i.e., dot cursor, (S69:No) and this control are ended, and a return is similarly carried out to S39. By the way, when the operated keys are the cursor left and a right translation key, (S60 and S67:No, 73:Yes), and migration processing of the dot cursor k are performed (S74), this control is ended, and a return is similarly carried out to S39. Furthermore, the drawing data with which the operated key sets (S60, S67 and S73:No), and dot data to "1" or "0" at the time of a Shift-key or a function key are created (S75), and a return is similarly carried out to S39.

[0031] Next, when an enlarging-or-contracting key is operated, (S39:Yes, S40:No, S42:Yes) pattern data zooming processing control is performed (S43), and S34, and S37-S38 are performed after that. Since this zooming processing control is not directly related to this invention, if it explains briefly One increment of the size pointer value PT is carried out by actuation of the bottom navigation key of cursor. The next size item of the table TB corresponding to the number of size dots is directed, and one decrement of the size pointer

value PT is carried out by actuation of a cursor top navigation key. A front size item is directed, and while the dot pattern data for registration by which expansion processing or contraction processing was carried out are stored in this size at the enlarging-or-contracting dot pattern memory 44, it is displayed on the registration dot pattern viewing area D of size based on size pointer value PT by S34.

[0032] Here, the marker display-processing control in said S37 and S38 when specifying size "EL" is explained in detail based on drawing 14 - drawing 15, drawing 18 - drawing 20. When size "EL" is specified, as shown in drawing 1818, to registration data memory 42d The registration memory area H which consists of 96 dot x96 dot is formed. To head display-line pointer TP0 "0", "0" is set to "31" head dot line pointer TDL by "0" tail dot line pointer BDL at the tail display-line pointer BP0, respectively to the number of dots of current size "N (96)", and the cursor pointer KP.

[0033] And based on the contraction ratio $\beta = 0.16$, as shown in drawing 19 $R > 9$, the marker head pointer value tp and the marker tail pointer value bp in the directions area buffer 45 are calculated, respectively. Since the number (BDL-BP) of vertical dots (-beta) which the number of vertical dots (TP-beta) which the display area part DP 0 bottom reduced was set to "0" at this time, and the display area part DP 0 bottom reduced is larger than "1" As shown in drawing 14 and drawing 19, the marker data which consist of dot data of "1" altogether ranging from the marker head pointer value tp to the marker tail pointer value bp are created, and the inverse video of the marker M is carried out to the display rectangle directions area E based on this marker data.

[0034] On the other hand, while performing drawing processing control, when the bottom navigation key of cursor is operated, one increment of (S60:Yes) and the cursor pointer value KP is carried out (S61), and when the cursor pointer value KP and the tail display-line pointer value BP are equal, "24" is added to (S62:Yes) head display-line pointer value TP and the tail display-line pointer value BP, respectively (S63). That is, based on the display area part DP 1 shown according to the two-dot chain line searched for with head display-line pointer value TP1 and the tail display-line pointer value BP1, as shown in drawing 18, as shown in drawing 14, 1 screen part of the dot pattern data for registration is displayed on the registration dot pattern viewing area D. And by marker display-processing control, as shown in drawing 20, the new marker head pointer value tp and the marker tail pointer value bp are calculated, respectively, and as shown in drawing 15, while the 1 next screen part of the new dot pattern data for registration which scrolled up is displayed, the inverse video of the marker M is carried out to the new location of the display rectangle directions area E.

[0035] On the other hand, as a result of carrying out multiple-times actuation of the bottom cursor movement key, as shown in drawing 18 When the number (BDL-BP) of contraction length dots of the display area part DP 2 bottom (-beta), becomes less than 1 dot based on head display-line pointer value TP2 and the tail display-line pointer value BP2, As shown in drawing 21, the marker tail pointer value bp is small amended only for "1." The blank line is prepared in the tail dot line of the directions area buffer 45, and the marker data which consist of dot data of "1" altogether ranging from the marker head pointer value tp to the marker tail pointer value bp are created. Based on this marker data, the inverse video of the marker M corresponding to a display is carried out to the display rectangle directions area E.

[0036] by the way, as mentioned above, when size is "M" Since that number of configuration dots is "32" and the package display to the registration dot pattern viewing area D is possible for the registration dot pattern data at this time As shown in drawing 17, in the directions area buffer 45, the marker head pointer tp from directing the head dot line and the marker tail pointer bp directing the tail dot line Marker data continue throughout directions area buffer 45, and are created, and as shown in drawing 13, the inverse video of the marker M corresponding to a display is carried out to the whole display rectangle directions area E.

[0037] next — the time (it Yes(es) S39: —) of an Enter key being operated in pattern creation processing control Pattern data registration processing in which the dot pattern data for registration of S40 and S42:No, S44:Yes, and the enlarging-or-contracting dot pattern memory 44 are stored in the registration data memory 42a-42j corresponding to a registration number X

is performed (S45). This control and pattern creation / registration processing control are ended, and a return is carried out to S11 of tape printing control.

[0038] However, when a cancel key is operated, the post process of clearing the dot pattern data for registration of (S39:Yes, S40, S42 and S44:No, S46:Yes), and the enlarging-or-contracting dot pattern memory 44 is performed (S47), and a return is similarly carried out to S11 of tape printing control. Moreover, when a cancel key is operated during activation of pattern creation / registration processing control, the post process of eliminating (S22:Yes, S23 and S25:No, S28:Yes), and a registration number selection screen is performed (S29), and a return is similarly carried out to S11 of tape printing control. Furthermore, in tape printing control, as keys other than a document preparation key or a registration key, when for example, a printing key is operated, printing processing corresponding to (S11:Yes, S12 and S15:No), and the operated key is performed, respectively (S17), and returns to S11.

[0039] As explained above, while the inputted dot pattern data for registration are displayed on the registration dot pattern viewing area D of the registration data input screen displayed on the display 22 While the display rectangle directions area E which reduced the registration memory area H is displayed on a registration data input screen Since the inverse video of the marker M corresponding to the display which reduced the display area part DP currently displayed on the display 22 of the registration memory areas H is carried out into the display rectangle directions area E of the registration data input screens The location of a pattern in preparation can check easily whether it is which location to the whole registration pattern, and can create the registration pattern of big size with sufficient balance easily. Furthermore, since scrolling actuation is sharply omissible, working capacity can be raised.

[0040] furthermore, when the number of vertical dots (TP-beta) which reduced the number of vertical dots for a non-display of the display area part DP top of the registration memory areas H by the contraction ratio beta is larger than "0" and smaller than "1" When the number (BDL-BP) of vertical dots (-beta) which the blank line was prepared in the 1-dot line of the head of marker data, and reduced the number of vertical dots for a non-display of the display area part DP bottom by the contraction ratio beta is larger than "0" and smaller than "1" Since the blank line is prepared in the 1-dot line of the tail of marker data and it is displayed in a null dot line by the 1-dot line of the top line of the marker M corresponding to a display, or the lowest line From the head location, a tail location can be covered and the display area part DP to the registration memory area H can be recognized certainly.

[0041] If the correspondence relation between each means indicated to the claim (claim 1) and the configuration in the above-mentioned example is explained here, the thing equivalent to a mode setting means Are the registration key prepared in the keyboard 3, and the thing equivalent to a size assignment means It is the cursor movement key which changes the size pointer PT which directs the size item of the table TB corresponding to the number of size dots prepared in ROM32, and this size pointer PT. What the thing equivalent to a registration data storage means is the registration memory 42 prepared in RAM40, and is equivalent to a directions area display-control means It is S56 and the control unit C of marker display-processing control, and the things equivalent to a marker display-control means are marker display-processing control and a control unit C.

[0042] In addition, the display rectangle directions area E may have the shape of a rectangle from which it is not restricted to 16 dot x16 dot magnitude, and the number of dots differs. Moreover, it is possible to display [display / flashing] the marker M corresponding to a display identifiable. In addition, of course, this invention can be applied to the dot pattern data origination equipment for registration of the various tape airline printers which were equipped with the printing mechanism of a small display or a dot method, and prepared the pattern add function.

[0043]

[Effect of the Invention] As explained above, according to the dot pattern data origination equipment for registration of the tape airline printer concerning claim 1 A mode setting means, a size assignment means, a registration data storage means, and a directions area display-control means, Establish a marker display-control means, and while the inputted dot pattern data for

registration are made into the registration data display field of the registration data input screen displayed on the display. While the display rectangle directions area which reduced the registration memory area is displayed on a registration data input screen. Since the marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas is displayed identifiable in the display rectangle directions area of the registration data input screens. The location of a pattern in preparation can check easily whether it is which location to the whole registration pattern, and can create the registration pattern of big size with sufficient balance. Furthermore, since scrolling actuation is sharply omissible, working capacity can be raised.

[0044] In addition, said directions area display-control means and a marker display-control means. When reducing the number of vertical dots of the display area part top of the registration memory areas, or the bottom by said contraction ratio and changing into the number of vertical dots of display rectangle directions area. In constituting so that it may revalue to 1 dot when the number of conversion length dots is less than 1 dot (claim 2). Since it is indicated by null dot **** by the 1-dot line of the top line of the marker corresponding to a display, or the lowest line, from the head location, a tail location can be covered and the display area part to a registration memory area can be recognized certainly.

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TECHNICAL FIELD

[Industrial Application] This invention relates to what enabled pattern registration of an alphabetic character, a mark, etc. using the small display especially about the dot pattern data origination equipment for registration of a tape airline printer.

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PRIOR ART

[Description of the Prior Art] Conventionally, in the object for Japanese, the word processor for English, etc., it has fundamentally the large-sized display which can display the data of a keyboard or the document for a multi-line, the printing mechanism of a dot method, etc., and while the data of the inputted document are displayed on a display and memorized by text memory, they are printable at the print form based on the printing format set up including a class, printing size, etc. of a print form. By the way, practical use is presented with what added the pattern add function which can draw freely in the magnitude of a dot pattern which consists of the predetermined number of configuration dots (for example, 48 dots or 56 dots), and moreover memorized registration patterns which a user demands, such as an alphabetic character, a mark, and an illustration, to storages, such as a floppy disk, by moving a small pointer or small cursor to the latest word processor. Therefore, based on said printing format, about registration pattern data, it is independent or printable by the desired character size in the location of the arbitration in document data.

[0003] by the way, an applicant for this patent like a publication in the real extraction-of-the-square-root 1-No. 85050 official report etc. The transparent printing tape as a printing medium (for example, 18mm 12mm 9mm) In order to print characters, such as an alphabetic character and a notation, on a tape with a width of face of 24mm While it has the printing mechanism which prepared the thermal head which made the lengthwise direction install successively 128 heater elements corresponding to 128 dots, and the printing ribbon The outline font data for printing a character is formed in a control unit. While displaying the character inputted from the keyboard in a lengthwise direction on the small display of the shape of an oblong rectangle with the number of dots smaller than the number of dots of a thermal head (for example, 32 dots) The tape airline printer it was made to print on a printing tape through a printing ribbon and a thermal head was put in practical use.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, according to the dot pattern data origination equipment for registration of the tape airline printer concerning claim 1 A mode setting means, a size assignment means, a registration data storage means, and a directions area display-control means, Establish a marker display-control means, and while the inputted dot pattern data for registration are made into the registration data display field of the registration data input screen displayed on the display While the display rectangle directions area which reduced the registration memory area is displayed on a registration data input screen Since the marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas is displayed identifiable in the display rectangle directions area of the registration data input screens The location of a pattern in preparation can check easily whether it is which location to the whole registration pattern, and can create the registration pattern of big size with sufficient balance. Furthermore, since scrolling actuation is sharply omissible, working capacity can be raised.

[0044] In addition, said directions area display-control means and a marker display-control means When reducing the number of vertical dots of the display area part top of the registration memory areas, or the bottom by said contraction ratio and changing into the number of vertical dots of display rectangle directions area In constituting so that it may revalue to 1 dot when the number of conversion length dots is less than 1 dot (claim 2) Since it is indicated by null dot **** by the 1-dot line of the top line of the marker corresponding to a display, or the lowest line, from the head location, a tail location can be covered and the display area part to a registration memory area can be recognized certainly.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] When adding the pattern add function mentioned above in the tape airline printer which said applicant for this patent proposed, since only the number of dots smaller than the number of dots of a thermal head is prepared in the lengthwise direction, a display When drawing in the magnitude of the dot pattern which the number of configuration dots becomes from 96 dots or 128 dots The registration pattern which registers this dot pattern cannot be displayed collectively, but the whole registration pattern will be displayed by division display, making the upper part or a lower part scroll a part of that registration pattern. Consequently, since it does not know whether the location of a pattern in preparation is which location to the whole registration pattern, that it is very difficult to create a registration pattern with sufficient balance, and in order to check the balance of a registration pattern further, the count of scrolling increases and there are problems, like being operability and working capacity is bad.

[0005] The purpose of this invention is offering the dot pattern data origination equipment for registration of the tape airline printer which can create the registration pattern of big size with sufficient balance, and may moreover improve working capacity.

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MEANS

[Means for Solving the Problem] The dot pattern data origination equipment for registration of the tape airline printer concerning claim 1 The input means for inputting an alphabetic character, a notation, and various commands, as shown in the functional block diagram of drawing 1 . The printing means containing the print head which prints an alphabetic character and a mark on the tape as a printing medium by the dot pattern, In the tape airline printer equipped with the display means including the display and display-control means of the number of vertical dots smaller than the number of dots of a print head In a mode setting means to set up the register mode which creates and registers an alphabetic character and the dot pattern data of a mark, the size assignment means for specifying the alphabetic character registered in register mode, and the size of a mark, and register mode A registration data storage means to memorize the alphabetic character and the dot pattern data for registration of a mark which were inputted into the registration data display field of the registration data input screens displayed on the display, A directions area display-control means to display on a registration data input screen the display rectangle directions area of the predetermined magnitude which reduced the registration memory area of the size specified with the size assignment means in a registration data storage means, The marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas by the contraction ratio of display rectangle directions area and the rate of said It has the marker display-control means displayed identifiable in the display rectangle directions area of the registration data input screens.

[0007] In addition, when reducing the number of vertical dots of the display area part top of the registration memory areas, or the bottom by said contraction ratio, and changing into the number of vertical dots of display rectangle directions area, and the number of conversion length dots is less than 1 dot, said directions area display-control means and a marker display-control means may be constituted so that it may revalue to 1 dot.

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OPERATION

[Function] In the dot pattern data origination equipment for registration of the tape airline printer concerning claim 1 Since a mode setting means sets up the register mode which creates and registers an alphabetic character and the dot pattern data of a mark and a size assignment means specifies the alphabetic character registered in register mode, and the size of a mark A registration data storage means memorizes the alphabetic character and the dot pattern data for registration of a mark which were inputted into the registration data display field of the registration data input screens displayed on the display in register mode to the registration memory area of the size specified with the size assignment means. On the other hand, a directions area display-control means displays on a registration data input screen the display rectangle directions area of the predetermined magnitude which reduced the registration memory area in a registration data storage means. Furthermore, a marker display-control means displays the marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas by the contraction ratio of display rectangle directions area and the rate of said identifiable in the display rectangle directions area of the registration data input screens.

[0009] Thus, while the inputted dot pattern data for registration are displayed on the registration data display field of the registration data input screen displayed on the display While the display rectangle directions area which reduced the registration memory area is displayed on a registration data input screen Since the marker corresponding to the display which reduced the display area part currently displayed on the display of the registration memory areas is displayed identifiable in the display rectangle directions area of the registration data input screens it can check easily whether the location of a pattern in preparation is which location to the whole registration pattern, the registration pattern of big size can be easily created with sufficient balance, and, moreover, working capacity is raised — deep — it can **.

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EXAMPLE

[Example] Hereafter, the example of this invention is explained based on a drawing. This example is a thing at the time of applying this invention for many a character and creation patterns, such as a kanji, a hiragana, and an alpha character, to the tape airline printer printable on the tape for printing (tape as a printing medium) Japanese and for English. As shown in drawing 2, a keyboard 3 is arranged in the anterior part of the body frame 2 of the tape airline printer 1, and the printing mechanism PM which has a thermal head 13 is arranged in the body frame 2 behind a keyboard 3, and the alphabetic character and the notation are formed in the small liquid crystal display 22 which can be displayed by two lines behind the keyboard 3.

[0011] The letter key [a keyboard 3] which can two or more kind generate character codes, such as the alphabet, a hiragana, a figure, and a notation, The cursor movement key for moving the cursor K displayed on the space key, the return key, and the display 22 in the direction of four directions, respectively, The registration key which registers created patterns, such as a non-changed key, a conversion key, an alphabetic character, and a mark, The function key for performing a different function combining keys which expand or direct [contraction] the created pattern, such as an enlarging-or-contracting key and a cursor movement key, The power-source key for ON-OFF [the tape-feed key for carrying out the tape feed of the Enter key which decides a setup under various kinds of processings etc., the printing key which performs printing, and the tape 5 for printing, and a power source] etc. is prepared.

[0012] If a printing mechanism PM is briefly explained based on drawing 3, it will be equipped with the rectangle-like tape receipt cassette CS removable. Next, to this tape receipt cassette CS The tape spool 6 with which the tape 5 for printing which consists of a transparent film was looped around, The ribbon feed spool 8 with which the ink ribbon 7 was looped around, and the take-up spool 9 which rolls round this ink ribbon 7, The double-sided tape 10 which has the same width of face as the tape 5 for printing is formed free [rotation of the junction roller 12 to which the feed spool 11 around which the condition of having made the releasing paper sticking outside was looped, and the tape 5 for these printing and a double-sided tape 10 are joined]. Here, the thing of five kinds of dedication which makes tape width of the tape 5 for printing 6mm, 9mm, 12mm, 18mm, and 24mm is prepared as said tape receipt cassette CS.

[0013] A thermal head 13 is set up by the location with which the tape 5 for printing and an ink ribbon 7 lap, and the delivery roller 15 which presses the platen roller 14 which presses the tape 5 for these printing and an ink ribbon 7 to a thermal head 13, and the tape 5 for printing and a double-sided tape 10 on the junction roller 12 is supported pivotably by the base material 16 pivotable in it. Furthermore, 128 heater elements are installed successively by this thermal head 13 in the vertical direction in the shape of close.

[0014] Therefore, while the junction roller 12 and a take-up spool 9 drive respectively synchronizing with a predetermined hand of cut by the drive to the predetermined hand of cut of the tape-feed motor 24 (refer to drawing 4), when it energizes to a heater element, on the tape 5 for printing, an alphabetic character and a notation are printed by two or more dot trains, and where a double-sided tape 10 is joined to the printing side, moreover, the tape feed of the tape 5 for printing after printing is carried out in the direction A of a tape feed. In addition, refer to the publication-number 2-No. 106555 official report about the detail of a printing mechanism PM.

[0015] Next, the control system of the tape airline printer 1 is constituted as shown in the block diagram of drawing 4. With a keyboard 3 and the display controller 23 who has RAM for a display for outputting an indicative data to a liquid crystal display (LCD) 22 (LCDC) The drive circuit 26 for driving the tape-feed motor 24 which carries out the rotation drive of the drive circuit 25 for driving a thermal head 13, two or more spools which looped around said tape 5 for printing and ink ribbon 7, and the double-sided tape 10, and the various rollers, It connects with the input/output interface 27 of a control unit C in the drive circuit 21 for the buzzer 20 for warning, respectively. the lengthwise direction of this display 22 is resembled be shown in drawing 13, and 32 dots fewer than the number of heater elements of a thermal head 13 are consisted of. The control device C consists of CPU29, and the input/output interface 27 connected to this CPU29 through the buses 28, such as a data bus, CGROM30 and ROM 31-32 and RAM40. Here, the dot pattern data origination equipment for registration consists of registration keys, cursor movement keys, etc. which were prepared in the control device C and the keyboard 3.

[0016] About each of many characters, the dot pattern data for a display make code data correspond to CGROM (pattern data memory)30, and are stored in it. In order to print a character, the border-line data (outline data) which specify the border line of a character are classified into every typefaces (Mincho a Gothic system typeface, system typeface, etc.) about each of many characters, code data are made to correspond to ROM (outline data memory)31, and it is stored in it.

[0017] The display drive control program which the code data of characters, such as an alphabetic character, a figure, and a notation, inputted into ROM32 from the keyboard 3 are made to correspond, and controls a display controller 23. The image expansion processing control program which carries out transform processing to the dot pattern data for printing from the outline data corresponding to each code data of the text memory 41 and which is developed to a print buffer 46. The printing drive control program which reads the data of a print buffer 46 one by one, and drives a thermal head 13 and the tape-feed motor 24, the control program of the below-mentioned tape printing control, etc. are stored. Furthermore, in order to create an alphabetic character, a mark, etc., as shown in drawing 5, the table TB corresponding to the number of size dots to which the "number of dots" which shows sizes, such as "SS", "S", and "M", and the magnitude of a registration pattern was made equivalent is stored in ROM32. In addition, tape width (6mm, 9mm, ...) is contained in this "size" as size, and the "number of dots" of the optimal size according to such tape width is matched with it.

[0018] The code data of an alphabetic character or a notation inputted from the keyboard 3 are stored in the text memory 41 of RAM40 as document data. Ten registration data memory 42a-42j corresponding to registration number "0" - "9" is formed in the registration memory 42, and the size pointer value which shows created dot pattern data for registration, such as an alphabetic character and a mark, and the size of those is stored in it at each of these registration data memory 42a-42j. The size pointer PT which directs the start address of 12 size items which made the size stored in said table TB corresponding to the number of size dots, and the number of dots correspond to the pointer memory 43. The cursor pointer KP for the dot cursor K used for creation of the dot pattern data for registration. The pointer BP which directs the pointer TP which directs the head display line of the registration data memory 42a-42j displayed on the registration dot pattern viewing area D in a registration data input screen, and its tail display line. The pointer BDL which directs the pointer TDL which directs the head dot line of the registration memory area in registration data memory 42a - 42j, and its tail dot line. The pointer value of the pointer bp which directs the pointer tp which directs the head location of the marker in the directions area buffer 45, and its tail location is stored, respectively.

[0019] The enlarging-or-contracting dot pattern data which processed [expansion-] or processed [contraction-] the created dot pattern data for registration are stored in the enlarging-or-contracting dot pattern memory 44. The marker data which consist of dot data for displaying the marker M displayed on the display rectangle directions area E in a registration data input screen are stored in the directions area buffer 45. The dot pattern data for registration read from dot pattern data and the registration memory 42 of the two or more alphabetic characters and the notation by which image expansion was carried out are stored in a print

buffer 46. In addition, the text memory 41 and the registration memory 42 of this RAM40 are backed up by the cell, and even if the tape airline printer 1 is turned off, those contents of storing disappear.

[0020] Next, the routine of the tape printing control performed with the control device C of the tape airline printer 1 is explained based on the flow chart shown in drawing 6 - Fig. 1010. In addition, the sign Si in drawing (i= 10, 11, 12) is each step. If a power source is switched on by the power-source key stroke, this tape printing control will be started, initial setting of clearing a printing mechanism PM and each memory 43-46 memory 41 and other than 42 first will be performed, and the document input screen for inputting a document into a display 22 will be displayed (S10). For example, as shown in drawing 11, while "document preparation/edit" is displayed on the upper case line by the display 22, the document input screen which can be displayed is displayed for the alphabetic character and notation which were inputted into the lower-berth line on it by 12 characters.

[0021] Next, when document preparation keys, such as a conversion key and a non-changed key, are operated in addition to letter keys and numerical keypads, such as a hiragana and katakana, (S11 and S12:Yes), and the inputted hiragana are changed into the kanji. Or the document data input and edit processing control which stores the inputted hiragana, katakana, and a figure and an alpha character in the text memory 41 as a document by no changing are performed (S13). It is indicated by sequential (S14) and the changed kanji, a non-changed hiragana, katakana, and a figure and an alpha character return to the location directed with the cursor K of a display 22 S11. For example, as shown in drawing 11, the inputted document "a hiragana and the kanji" is displayed on a display 22.

[0022] Next, when a registration key is operated during document preparation, (S11:Yes, S12:No, S15:Yes), and register mode are set up, and pattern creation / registration processing control (refer to drawing 7) is performed (S16). ** [initiation of this control / display / first / on a display 22 / a registration number selection screen] — having (S20) — further — all the registration data memory 42a-42j — searching — the original dot pattern data for registration — storing — a registration mark is added and displayed on a registered registration number (S21). For example, since storing registration of the original dot pattern data for registration has already been carried out registration number "0" - "2" and "4" while the registration number selection screen containing registration number [of ten pieces] "0" - "9" is displayed on a display 22, as shown in drawing 12, a registration mark "*" is displayed on each right-hand of these registration numbers by coincidence.

[0023] Next, when a cursor right translation key or a cursor left translation key is operated, (S22 and S23:Yes), and Cursor K are moved and displayed on the registration number on the right-hand side of a single figure, or a left-hand side registration number according to the class of cursor movement key (S24), and return to S22. And when an Enter key is operated, the registration number X directed with (S22:Yes, S23:No, S25:Yes), and Cursor K is stored in the work-piece buffer of RAM40 (S26), and pattern creation processing control (refer to drawing 8) is performed (S27).

[0024] When this control is started and the dot pattern data for registration do not exist in the registration data memory 42a-42j corresponding to a registration number X, to (S32:No) and size pointer value PT While start-address alpha of a default size item is set (S35) and the registration data input screen for this default size is displayed on a display 22 The registration memory area H of the rectangle which consists of the number of configuration dots of this size is formed in the registration data memory 42a-42j corresponding to a registration number X (S36). For example, while the registration data input screen for the default size made into a 32-dot number in size "M" is displayed on a display 22, as are shown in drawing 5 and drawing 13, and start-address alpha of a default size item "M" is set to size pointer value PT1, and it is shown in drawing 17, the registration memory area H set to registration data memory 42d corresponding to a registration number "3" from 32 dot x32 dot is formed.

[0025] Here, the registration dot pattern viewing area (it is equivalent to a registration data display field) D is formed, it can display on a lengthwise direction by 32 dots in this viewing area D, and several dot minute display of current size is attained in the longitudinal direction at the

left end section of this registration data input screen. Furthermore, the display rectangle directions area E which shows the display rectangle of the registration dot pattern viewing area D to the magnitude of the dot pattern of the present size is established in the Johan section of the right end section of an input screen. In addition, this directions area E consists of 16 dot x16 dot magnitude. When this control is started, and the dot pattern data for registration exist in the registration data memory 42a-42j corresponding to a registration number X, by the way, (S32:Yes), While the size pointer value registered along with that dot pattern data is set to the size pointer PT (S33) and the registration data input screen for this size pointer value is displayed The dot pattern data for registration is displayed on the registration dot pattern viewing area D (S34).

[0026] Next, in order to display the marker M corresponding to a display on the display rectangle directions area E To the head display-line pointer TP at initial value "0" and the tail display-line pointer BP Initial value "31", The number of dots of the size which the current size pointer PT directs to the head dot line pointer TDL at the initial value "0" tail dot line pointer BDL "N", Initial value "0" is set to the cursor pointer KP, respectively (S37), and marker display-processing control (refer to drawing 9) is performed (S38). Initiation of this control asks for the ratio beta which reduces the number of dots of current size "N" to 16 dots based on size pointer value PT first (S50). For example, as shown in drawing 13 , when the present size is "M", it is the contraction ratio $\beta = 0.5$. It asks.

[0027] Next, based on the contraction ratio beta, the location of the marker head pointer tp corresponding to the head display-line pointer TP and the location of the marker tail pointer bp corresponding to the tail display-line pointer BP are called for, respectively, and the marker data which consist of dot data of "1" altogether ranging from these marker head pointer value tp to the marker tail pointer value bp are stored in the directions area buffer 45 (S51). And when reducing the number of vertical dots for a non-display of the display area part DP top of the registration memory areas H by the contraction ratio beta When the reduced number of vertical dots (TP-beta) is larger than "0" and smaller than "1", (S52:Yes), When a null is prepared in the 1-dot line of the head of marker data, and it is amended by the value with the marker head pointer value tp large [one] (S53) and the number of vertical dots for a non-display of the display area part DP bottom is reduced by the contraction ratio beta When the reduced number (BDL-BP) of vertical dots (-beta) is larger than "0" and smaller than "1", a null is prepared in the 1-dot line of the tail of (S54:Yes) and marker data, and the marker tail pointer value bp is amended by the value small [one] (S55).

[0028] Next, the display rectangle directions area E of the magnitude which consists of 16 dot x16 dot which reduced the registration memory area H is displayed on a registration data input screen (S56), and based on the marker head pointer value tp and the marker tail pointer value bp, into this display rectangle directions area E, inverse video is carried out (S57), and further, Marker M ends this control and carries out a return to S39 of pattern creation processing control. For example, as shown in drawing 13 , while the display rectangle directions area E is displayed on a registration data input screen, the inverse video of the marker M is carried out to this whole display rectangle directions area E.

[0029] Next, when pattern creation keys, such as a cursor movement key, and a Shift-key or a function key, are operated, (S39 and S40:Yes), and drawing processing control (refer to drawing 10) are performed (S41). Are started, and when the key by which this control was operated is a bottom navigation key of cursor, (S60:Yes), When the dot cursor k of the time D, i.e., a registration dot pattern viewing area, is not the lowest line display location of this viewing area D, by carrying out one increment of the cursor pointer value KP (S61), and the cursor pointer value KP being equally to the tail display-line pointer value BP (S62:No), This control is ended and a return is carried out to S39 of pattern creation processing control.

[0030] The cursor pointer value KP is equally to head display-line pointer value TP, on the other hand, when the operated key is a cursor top navigation key, one decrement of (S60:No, 67:Yes), and the cursor pointer value KP is carried out (S68), when it is not the top line display position of this viewing area D at the time k, i.e., dot cursor, (S69:No) and this control are ended, and a return is similarly carried out to S39. By the way, when the operated keys are the cursor left and

a right translation key, (S60 and S67:No, 73:Yes), and migration processing of the dot cursor k are performed (S74), this control is ended, and a return is similarly carried out to S39. Furthermore, the drawing data with which the operated key sets (S60, S67 and S73:No), and dot data to "1" or "0" at the time of a Shift-key or a function key are created (S75), and a return is similarly carried out to S39.

[0031] Next, when an enlarging-or-contracting key is operated, (S39:Yes, S40:No, S42:Yes) pattern data zooming processing control is performed (S43), and S34, and S37-S38 are performed after that. Since this zooming processing control is not directly related to this invention, it explains briefly One increment of the size pointer value PT is carried out by actuation of the bottom navigation key of cursor. The next size item of the table TB corresponding to the number of size dots is directed, and one decrement of the size pointer value PT is carried out by actuation of a cursor top navigation key. A front size item is directed, and while the dot pattern data for registration by which expansion processing or contraction processing was carried out are stored in this size at the enlarging-or-contracting dot pattern memory 44, it is displayed on the registration dot pattern viewing area D of size based on size pointer value PT by S34.

[0032] Here, the marker display-processing control in said S37 and S38 when specifying size "EL" is explained in detail based on drawing 14 - drawing 15, drawing 18 - drawing 20. When size "EL" is specified, as shown in drawing 18, to registration data memory 42d The registration memory area H which consists of 96 dot x96 dot is formed. To head display-line pointer TP0 "0", "0" is set to "31" head dot line pointer TDL by "0" tail dot line pointer BDL at the tail display-line pointer BP0, respectively to the number of dots of current size "N (96)", and the cursor pointer KP.

[0033] And based on the contraction ratio $\beta = 0.16$, as shown in drawing 19 $R > 9$, the marker head pointer value tp and the marker tail pointer value bp in the directions area buffer 45 are calculated, respectively. Since the number (BDL-BP) of vertical dots (-beta) which the number of vertical dots (TP-beta) which the display area part DP 0 bottom reduced was set to "0" at this time, and the display area part DP 0 bottom reduced is larger than "1" As shown in drawing 14 and drawing 19, the marker data which consist of dot data of "1" altogether ranging from the marker head pointer value tp to the marker tail pointer value bp are created, and the inverse video of the marker M is carried out to the display rectangle directions area E based on this marker data.

[0034] On the other hand, while performing drawing processing control, when the bottom navigation key of cursor is operated, one increment of (S60:Yes) and the cursor pointer value KP is carried out (S61), and when the cursor pointer value KP and the tail display-line pointer value BP are equal, "24" is added to (S62:Yes) head display-line pointer value TP and the tail display-line pointer value BP, respectively (S63). That is, based on the display area part DP 1 shown according to the two-dot chain line searched for with head display-line pointer value TP1 and the tail display-line pointer value BP1, as shown in drawing 18, as shown in drawing 14, 1 screen part of the dot pattern data for registration is displayed on the registration dot pattern viewing area D. And by marker display-processing control, as shown in drawing 20, the new marker head pointer value tp and the marker tail pointer value bp are calculated, respectively, and as shown in drawing 15, while the 1 next screen part of the new dot pattern data for registration which scrolled up is displayed, the inverse video of the marker M is carried out to the new location of the display rectangle directions area E.

[0035] On the other hand, as a result of carrying out multiple-times actuation of the bottom cursor movement key, as shown in drawing 18 When the number (BDL-BP) of contraction length dots of the display area part DP 2 bottom (-beta) becomes less than 1 dot based on head display-line pointer value TP2 and the tail display-line pointer value BP2, As shown in drawing 21, the marker tail pointer value bp is small amended only for "1." The blank line is prepared in the tail dot line of the directions area buffer 45, and the marker data which consist of dot data of "1" altogether ranging from the marker head pointer value tp to the marker tail pointer value bp are created. Based on this marker data, the inverse video of the marker M corresponding to a display is carried out to the display rectangle directions area E.

[0036] by the way, as mentioned above, when size is "M" Since that number of configuration dots is "32" and the package display to the registration dot pattern viewing area D is possible for the registration dot pattern data at this time As shown in drawing 17, in the directions area buffer 45, the marker head pointer tp from directing the head dot line and the marker tail pointer bp directing the tail dot line Marker data continue throughout directions area buffer 45, and are created, and as shown in drawing 13, the inverse video of the marker M corresponding to a display is carried out to the whole display rectangle directions area E.

[0037] next — the time (it Yes(es) S39: —) of an Enter key being operated in pattern creation processing control Pattern data registration processing in which the dot pattern data for registration of S40 and S42:No, S44:Yes, and the enlarging-or-contracting dot pattern memory 44 are stored in the registration data memory 42a-42j corresponding to a registration number X is performed (S45). This control and pattern creation / registration processing control are ended, and a return is carried out to S11 of tape printing control.

[0038] However, when a cancel key is operated, the post process of clearing the dot pattern data for registration of (S39:Yes, S40, S42 and S44:No, S46:Yes), and the enlarging-or-contracting dot pattern memory 44 is performed (S47), and a return is similarly carried out to S11 of tape printing control. Moreover, when a cancel key is operated during activation of pattern creation / registration processing control, the post process of eliminating (S22:Yes, S23 and S25:No, S28:Yes), and a registration number selection screen is performed (S29), and a return is similarly carried out to S11 of tape printing control. Furthermore, in tape printing control, as keys other than a document preparation key or a registration key, when for example, a printing key is operated, printing processing corresponding to (S11:Yes, S12 and S15:No), and the operated key is performed, respectively (S17), and returns to S11.

[0039] As explained above, while the inputted dot pattern data for registration are displayed on the registration dot pattern viewing area D of the registration data input screen displayed on the display 22 While the display rectangle directions area E which reduced the registration memory area H is displayed on a registration data input screen Since the inverse video of the marker M corresponding to the display which reduced the display area part DP currently displayed on the display 22 of the registration memory areas H is carried out into the display rectangle directions area E of the registration data input screens The location of a pattern in preparation can check easily whether it is which location to the whole registration pattern, and can create the registration pattern of big size with sufficient balance easily. Furthermore, since scrolling actuation is sharply omissible, working capacity can be raised.

[0040] furthermore, when the number of vertical dots (TP-beta) which reduced the number of vertical dots for a non-display of the display area part DP top of the registration memory areas H by the contraction ratio beta is larger than "0" and smaller than "1" When the number (BDL-BP) of vertical dots (-beta) which the blank line was prepared in the 1-dot line of the head of marker data, and reduced the number of vertical dots for a non-display of the display area part DP bottom by the contraction ratio beta is larger than "0" and smaller than "1" Since the blank line is prepared in the 1-dot line of the tail of marker data and it is displayed in a null dot line by the 1-dot line of the top line of the marker M corresponding to a display, or the lowest line From the head location, a tail location can be covered and the display area part DP to the registration memory area H can be recognized certainly.

[0041] If the correspondence relation between each means indicated to the claim (claim 1) and the configuration in the above-mentioned example is explained here, the thing equivalent to a mode setting means Are the registration key prepared in the keyboard 3, and the thing equivalent to a size assignment means It is the cursor movement key which changes the size pointer PT which directs the size item of the table TB corresponding to the number of size dots prepared in ROM32, and this size pointer PT. What the thing equivalent to a registration data storage means is the registration memory 42 prepared in RAM40, and is equivalent to a directions area display-control means It is S56 and the control unit C of marker display-processing control, and the things equivalent to a marker display-control means are marker display-processing control and a control unit C.

[0042] In addition, the display rectangle directions area E may have the shape of a rectangle

from which it is not restricted to 16 dot x16 dot magnitude, and the number of dots differs. Moreover, it is possible to display [display / flashing] the marker M corresponding to a display identifiable. In addition, of course, this invention can be applied to the dot pattern data origination equipment for registration of the various tape airline printers which were equipped with the printing mechanism of a small display or a dot method, and prepared the pattern add function.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

- [Drawing 1] It is the functional block diagram showing the configuration of claim 1.
- [Drawing 2] It is the top view of a tape airline printer.
- [Drawing 3] It is the outline top view of a printing mechanism.
- [Drawing 4] It is the block diagram of the control system of a tape airline printer.
- [Drawing 5] It is a graph explaining the data configuration of the table corresponding to the number of size dots.
- [Drawing 6] It is the outline flowchart of the routine of tape printing control.
- [Drawing 7] It is the outline flowchart of the routine of pattern creation / registration processing control.
- [Drawing 8] It is the outline flowchart of the routine of pattern creation processing control.
- [Drawing 9] It is the outline flowchart of the routine of marker display process control.
- [Drawing 10] It is the outline flowchart of the routine of drawing processing control.
- [Drawing 11] It is drawing showing the example of a display of a document input screen.
- [Drawing 12] It is drawing showing the example of a display of a registration number selection screen.
- [Drawing 13] It is drawing showing the example of a display of a registration data origination screen.
- [Drawing 14] It is drawing showing the example of a display of an expansion registration data input screen.
- [Drawing 15] It is the drawing 14 equivalent Fig. where display area parts differ.
- [Drawing 16] It is an explanatory view explaining the registration memory area in registration data memory.
- [Drawing 17] It is an explanatory view explaining the marker data in a directions area buffer.
- [Drawing 18] It is an explanatory view explaining the registration memory area of size "EL."
- [Drawing 19] It is an explanatory view explaining the marker data at the time of size "EL."
- [Drawing 20] It is the drawing 19 equivalent Fig. showing the marker data which moved to the bottom.
- [Drawing 21] It is the R> 9 about drawing 19 Fig. showing the marker data which moved to the lowest edge.

[Description of Notations]

1 Tape Airline Printer
3 Keyboard
13 Thermal Head
22 Liquid Crystal Display
29 CPU
32 ROM
40 RAM
42 Registration Memory
C Control unit
PM Printing mechanism

[Translation done.]

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